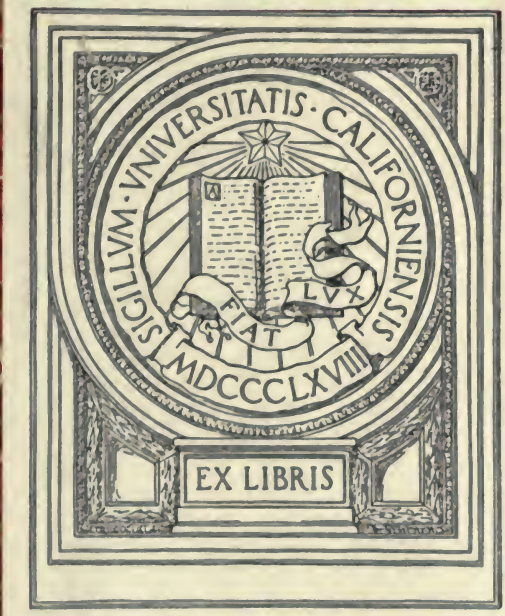

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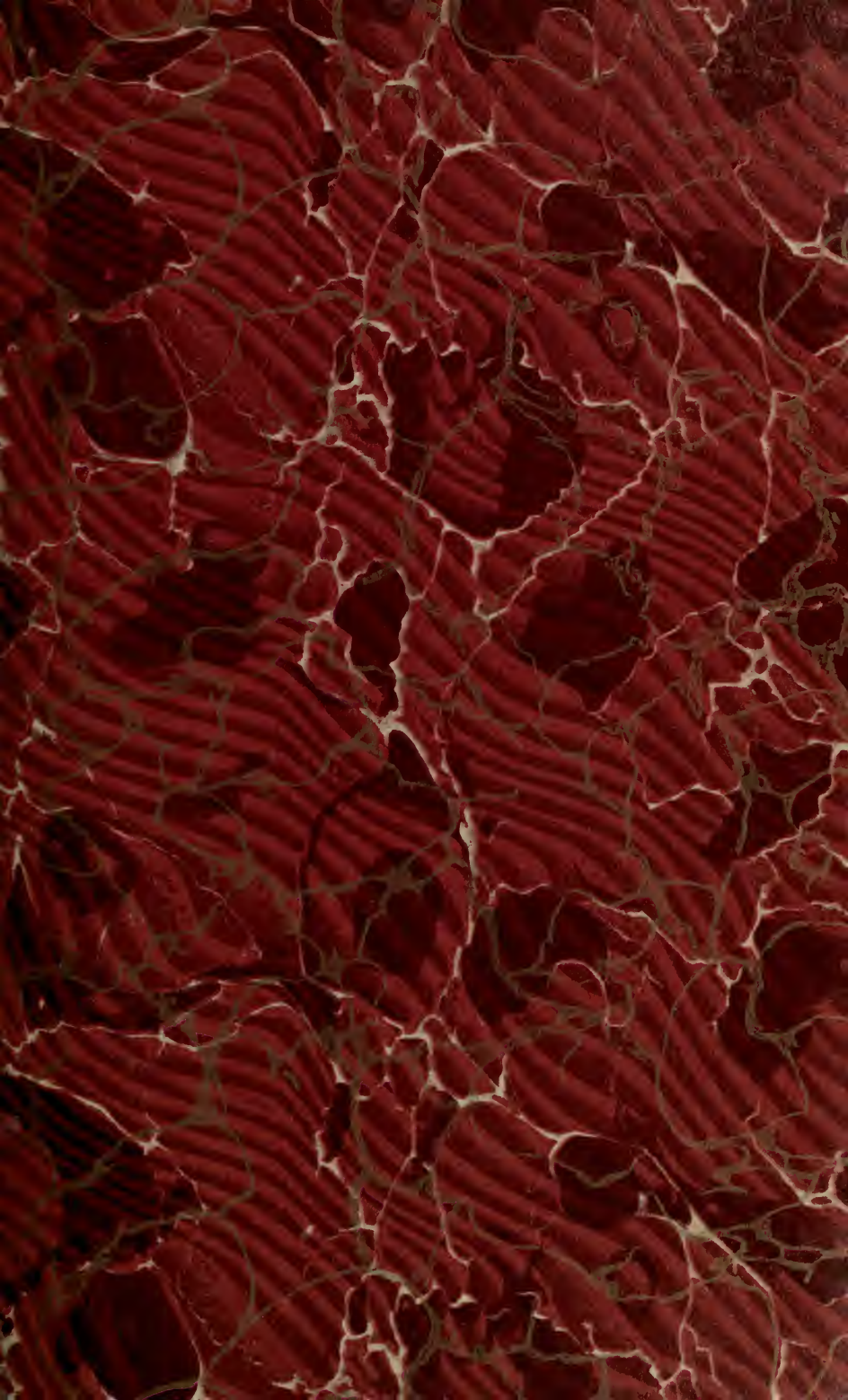

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TRAVELS

IN

HUNGARY,

IN

1818.

BY F. S. BEUDANT,

MEMBER OF MANY LEARNED SOCIETIES.

Translated from the French.

LONDON:

PRINTED FOR SIR RICHARD PHILLIPS AND CO.

BRIDE-COURT, BRIDGE-STREET.

1823.

ADVERTISEMENT.

HUNGARY is a country, of which our knowledge, from the very little intercourse maintained with it, is exceedingly imperfect. The duties of a recent traveller, M. Beudant, led him to explore and survey that remote unvisited region, with the design of collecting, ascertaining, and adopting, on a systematic principle, all such new, but scattered information, as was to be found in a large sphere of remark and enquiry, upon the subject of geology.

But while paying due attention to the principal and avowed object, he deemed it of importance to accomplish another by it, that of observing and describing what the means given, and the opportunities afforded, would enable him to learn, during his short stay, respecting the customs and manners, the taste, habits, and character, of the inhabitants, the chief part of which has been carefully preserved in the following translation.

G. SIDNEY, Printer,
Northumberland Street, Strand.

INTRODUCTION.

In respect of the diversities of its people, no country whatever can be compared with Hungary. They form an heterogeneous assemblage of nations, some of which descend from the primitive inhabitants, others from the different hordes that invaded them, including migrations from neighbouring countries, colonies invited thither, and individual families attracted by the fertility of the soil, or the hopes of commercial gain.

The following are the names under which the several nations may be arranged: Slowacks, Croats, Russniaks, Servians, Illyrians, Carniolians, Magyares, Kumans, Jaszons, Szeklers, Wallachians, Bulgarians, Saxons, Suabians, Bavarians, Franconians, Austrians, Greeks, Armenians, Albanians, Italians, French, Jews, and Zingares.

Though attached for ages to the same country, united by a common interest, governed, in several respects, by the same laws, and living, for the most part, in good intelligence with each other, the diversities here enumerated remain distinct. Each retains, with a sort of pride, the remembrance of its origin, and the alliances they contract are within the limits of its pale.—Thus they preserve their dialect, manners, customs, and very often a peculiar physiognomy.

The Slowacks, called also Bohemian Slavi, designated, in French, by the generic term, Sclavonian, mostly inhabit the mountainous part in the north of Hungary. They nearly compose the entire population of the Comitats of Presburg, Niyitra, Trentsen, Thurotz, Arva, Liptot, Zolyom, Bacs, Gomor, Nograd, and Gran. These Sclavonians are probably the remains of the extensive Moravian kingdom, and, of course, the natural inhabitants of the country. They are more active and more industrious than the Hungarians, and have spread their colonies, in our times, into different parts of the flat country

that were uninhabited before. One fact is remarkable, that wherever the Sclavonians form fresh establishments, the Germans and Hungarians either become blended with them, or soon disappear. Several even of the Town Mines, which are now become Sclavonian, as M. Schwartner observes, retain a decisive mark of their denationalization, in their names, as also those of many families, being of German origin.

The Slowacks are in general pretty well made, and they dress rather neatly, and at times elegantly, on their holidays. Their summer dress consists of cloth pantaloons, of buskins, of a cloth waistcoat without sleeves, garnished with very large silver buttons, in the form of little bells, and chased on the surface. The waistcoat open, lets the shirt appear, which is embroidered on the breast and sometimes on the sleeves. A leather girdle serves to fasten the clothes about the body; it incloses also the steel, the tinder-box, the pipe, and the tobacco-pouch. In winter a large pelisse of cloth, or of sheep skin, suffices to protect them from the rigours of the season. As to head-dress, it varies in different places; frequently the head appears bare, the hair oiled and pretty well combed. In some parts they wear a large round hat, in others a sort of high hood, a foot and a half in length, and without a brim; it is a coif or cap of felt. The women appear in buskins with copper heels, adorned with little bells; they have cloth petticoats and corsets without sleeves, mostly of a dark colour. Their chemise is commonly embroidered about the sleeves, which are sometimes edged also with a coarse lace. Young girls have their hair tied behind in a queue, trimmed with ribbands of all colours, that float on the back. The women adjust their head dress with a long cloth band, which, from the middle of the head, falls crossways on the chin; the two ends turned behind about the neck, are again brought forward so as to fall elegantly on the breast. This *coiffure* so completely overspreads the face, that scarcely is even the nose visible. Its singularity may be accounted for from the piercing winds to which they are exposed at morning, night, or occasionally in the day-time, and which prove very troublesome, if the neck is not well covered. To the same cause I assign the men letting their hair float on their shoulders. Though habituated to brave all the vicissitudes of the weather, I have often been obliged, at night and morning, to wear a kind of shawl about my neck and head, like many of the inhabitants in the hot countries.

The Russniaks, or Ruthenians, (properly Russians, and sometimes wrongly named Greeks, from the religion they profess) are originally from Red Russia, i. e. Eastern Galicia and

Lodomeria. When oppressed by the Russians and Polanders, they took refuge in Hungary, about the twelfth century. Here their local seat is in the comitats of Saros, Beregh, Ugots, Ungh, Zemplen, and a part of the Marmaros. Placed also on the limits of their natal soil, they unite with their countrymen that still remain in Galicia, in the circles of Stanislawow, of Stry and Sambor. Some also have settled in the Buckowine, and others have passed into Transylvania, where they are blended with the Wallachians. They appear to be of a dull and heavy temperament, and in general live wretchedly. Their number is not considerable, and they live on good terms with the other nations. Their language is a dialect of the Sclavonian, but they do not intermix with the Sclavonians, which is attributed to their religion. Some follow the orthodox, and others the schismatic Greek Ritual.

The Servians, called also Raatzes or Rascians, but among themselves named Serbi, come originally from Bosnia and Servia. Their country was incorporated with the kingdom of Hungary, in the beginning of the thirteenth century; and from that time they began to pass the Save and the Danube, and to settle on the military frontiers which they now occupy. But when Bosnia and Servia fell under the dominion of the Turks, a number of others arrived. The kings of Hungary then became their protectors, and granted them considerable privileges, with the free exercise of the orthodox Greek religion, which they profess; their bishops have also obtained the right of sitting in the diet. The Servians are pretty numerous, and in general in good repute with the other nations. They chiefly inhabit the military frontiers, and speak a particular dialect of the Sclavonian. We find them also in a considerable number in the southern part of the Great Plain, in the comitats of Temes, Torontal, Bacs, &c. also in Sclavonia and Croatia, besides a great number of them in Transylvania.

The Croats or Horvates form a remnant of the ancient Sclavonians, who, about the beginning of the seventh century, emancipating themselves from the dominion of the Avari, extended their conquests into the present Albania, Servia, Bosnia, Croatia, and Dalmatia. Besides Croatia, properly so called, this nation still occupies a part of the comitats of Sthulweissenburg, Eisenburg, Sumegh, Wieselburg, Œdenburg, and Szala, in Western Hungary. They constitute also a part of the population of Sclavonia, and are found mingled with Illyrians, Carniolians, Germans, and Hungarians, that were invited into their country, on the termination of those bloody wars, of which it had been the theatre, and during which the Turks had destroyed the major part of the inhabitants.

As a people, the Croats retain an air of rudeness in their manners and physiognomy, notwithstanding which, frankness and loyalty form the basis of their character, and the conduct of such as I met with was irreproachable. They appear tolerably neat in their dwellings, but their apparel is often coarse, and sometimes old enough. The women especially hunt for a medley of motley colours; I have seen them sometimes with petticoats of strong blue or brown cloth, streaked and speckled with ribbands of every colour; also with red stockings and yellow shoes, or with stockings striped transversely, red, yellow, brown, &c. But I may seem here criticising too freely, for I recollect, at Paris, not more than twenty years ago, our elegantes being caparisoned, about the legs and feet, in the same way. The women attire their heads pretty much like the Slowacks; their figure is, in like manner, half concealed; but in some cantons they wear besides, on the crown, a napkin folded square, and a muslin neck cloth or handkerchief, or else a piece of linen fastened to it, but so as to fall and spread over the back. Generally speaking, the costume varies materially in the different parts of the country which these people inhabit; the only predominant taste is for mottled stuffs, or clothing of different colours.

The Magyares form a considerable part of the population of the Hungarian provinces, but their number is inferior to that of the Sclavonians taken collectively. It is wonderful that they have not long ago been extinguished or confounded with the other natives, having had particularly so many wars and disasters to encounter and surmount. The Magyares, with their own maternal language, still exist as a separate nation, occupying all the flat country in the centre of Hungary. This people spread from the plains of Munkacs, where they first arrived, through all the fertile part of the country, driving the Sclavonians into the mountainous regions, and employing themselves in agriculture, or leading a pastoral life. Becoming Hungarians, they have also settled in Transylvania, where they occupy the comitats of Kruszna, Torda, Alba Inferior, Alba Superior, Dobaka, Hunyad, Klausenburg, Kukullo, Szolnok Interior, Szolnok Middle, Zarand, and the districts of Fagaras and Kovar.

The Magyares retain a distinct character, uniformly discernible. They are of the middling size, but of a robust make. Many authors describe the Hungarians generally as tall, but this rather belongs to the Sclavonians, who are commonly slender, and not so stout as the Hungarians. The Magyares are broad shouldered, with muscular limbs, have a well set figure, and a very masculine physiognomy, breathing an air of

independence, that appears to most advantage when united with the qualities of the heart. They possess a degree of vivacity even to impetuosity; their frankness many would construe into rudeness, but it is accompanied with an accommodating temper, and they are ever ready to do services. A sprightly manner, blended with their vivacity, and mixed with a certain head-strong inconstancy, makes their character, to speak freely, resemble that of the French. Having been admitted into a number of companies where French was universally spoken, and remarking the gaiety of some, the impassioned manner of others, the lively turns of the discussion, the desultory interruption of conversation, combined with the affability of all, I have forgot for a time that I was in a foreign country. This description is not, however, more applicable to the Magyares than to the Sclavonians, and must be understood as restricted to the higher classes.

The dress of the Magyare peasant resembles that of the Slowacks, but it is of a ruder kind. Large pantaloons of linen cloth, which fall into the stockings or over the boots, and a shirt which only comes down to the loins; these constitute the summer wear. A large pelisse of sheep skin, often embroidered with other colours, thrown over the shoulders, or a rough great coat, with very long hairs, to resemble the fleece of a sheep, makes up the winter apparel. But if the dress of the peasants be generally coarse, throughout Hungary, that of the gentlemen is very elegant; it is modeled on the equipment of our light cavalry, originally copied from the Hungarian cavalry, which has ever been in great reputation. Our hussars have borrowed their name, their helmets are similar, and some of their accoutrements, as Sako, Sabrack, &c. are terms of Hungarian derivation. According to report, the word Hussar originates from an edict of king Mathias Corvin, ordaining that every twenty labourers should provide a horseman; he was called, in Hungarian, Huzzas, whence hussar has been formed.

The Kumans, called by the Hungarians, Kun, appear to be of Magyare origin; their name, perhaps, comes from the river Kuma, which, from the Caucasean region, falls into the Black Sea. We find, in history, a branch of the Magyare people extending to Caucasus, and on the banks of the Kuma, are the ruins of a town called Madschar, or Madjar, which may indicate their pristine residence. Their history becomes more apparent about the end of the eleventh century, and the beginning of the twelfth, when king Stephen, to recompence their valour, in wars against the Greek emperor, assigned them a district on the banks of the Theysse, now known by the name of Great Kumania or Great Kunia; in Hungarian, Nagy Kunsag.

In a later time, under the reign of Bela IV., a tribe of Kumans, from the northern plains about the Black Sea, came to claim Hungarian protection, and received a portion of territory, now called Little Kumania, or Little Kunia, in Hungarian, Kis Kunsag. Their language is a dialect of the Hungarian. The people are almost wholly occupied in rearing cattle, their situation and soil being favourable for pasturage.

The Jaszons appear to be also a tribe of Kumans. The name of Jasz, which the Hungarians sometimes give to the Kumans, generally, is thought to be derived from their skill in jaculating arrows, and from their being employed in the corps of lancers. In ancient acts, they are mentioned under the names of Balistarii and Balistei, and, by corruption, Philistei, words which refer to a similar import. The Jaszons inhabit a particular district in the comitat of Pest, designated by Hungarian geographers, by the name of Jaszsag, and which was granted to them by king Ladislas I. Their language is the same as that of the Kumans.

The Szeklers must be of the same origin as the Magyares, as they speak the same language and exhibit the same traits of character. They are of a middling size and robust make; their complexion is brown, their hair black, their physiognomy ardent and animated. The people are considered as the remains of the Kuns, and have been settled for ages in Transylvania, where history exhibits them in all the wars and troubles that have ravaged that country. They occupy the eastern part in the local seats of Haromeszek, Udvarhely, Csik, and Aranyos, all conquered by force of arms and secured by treaties, which have likewise guaranteed to them a number of particular privileges. They form one of the three nations of Transylvania; the two others are the Hungarians, properly so called, and the Saxons.

The Wallachians, called by themselves Romans, (Rumaene) seem to be actually a remnant of the ancient Dacians and Roman colonists intermixed. During the incursions of the barbarous hordes, they sought refuge about Mount Hæmus, and afterwards found means to re-enter their own country. Their language is a mixture of corrupt Latin, or bad Italian and Sclavonian; and thus, with the exception of some words, a Frenchman, habituated to the dialect in the southern provinces of France, finds it easy to understand and converse with them. In writing they make use of Greek characters, disfigured more or less. These they have borrowed from the Sclavonians, among whom this alphabet was introduced by the two brothers, Cyril and Methodus, sent from Constantinople, about the end of the ninth century, to preach the gospel and translate the

scriptures into their language. These missionaries added several particular signs to the common Greek alphabet, to express all the sounds of the new language they were to adopt. As to the word Valaque or Wallach, German, it seems to come from the Sclavonian word Wlach, pronounced nearly Valaque, and which signifies an Italian: just as the words Walen and Wallon, in the middle ages, designated a people whose language had affinity to that of the Romans.

The Wallachians are, in general, little and robust; of an aspect rather lively, but of a brutal and perverse character. Their hair is black and clotted together, and of all the tribes in Hungary, they are the most remote from civilization. The men are naturally slothful, and if they can find means to satisfy the most urgent wants, are with difficulty excited to labour. Hence, they ever appear filthy and ill clothed, and they must drag out a miserable existence. From this indolence and wretched condition, De Sacy derives their name. He conceives that the Greeks, who first made mention of them, designated them by the name of *Blax*, which denotes idle, contemptible. The women, on the contrary, are very active; we never see them unemployed, and if we meet them in the highways, it is always with the distaff or knitting in their hands. It is they who manufacture all the clothing for the family; they assist, and often become substitutes for their husbands in the labours of the field. In their cabins they manage the household business, while the men are smoking their pipes, or reposing sluggishly in some corner of the tenement or garden, or waiting till their meal is brought them. This activity gives to the Wallachian women an advantage of an exterior more engaging than that of the men, attended at times with a certain elegance, and their costume in general has nothing in it disagreeable. They wear no petticoats, but their chemise, often embroidered with different colours, is always very long, and they spread over it two aprons set off with fringes, one before and the other behind. Their headdress consists in a sort of little bonnet tucked out and rumpled, or in a handkerchief folded somewhat like a turban; the young women have their hair plaited, and sometimes pretty neatly combed.

Maize forms the chief article of sustenance with the Wallachians; of this they make a soup called memelige, and a sort of bad bread; they have scarcely any thing else but milk and its produce, with leguminous plants and roots. The men are immoderately addicted to drinking brandy. Their national character is that of crafty, vindictive, pilfering, and superstitious, with no fixed principles of morality or religion. To

which, when we add that they are destitute of arts and civilization, their condition must evidently be abject, and we need not wonder if the Hungarians, as well as other nations, treat them like slaves. They dwell chiefly in Transylvania and on the frontiers of Wallachia, but they are tolerated merely, and are not considered as forming a part of the nations that possess the country. Several, indeed, from some signal merits, have become members of these nations, and there are distinguished families among them, of Wallachian origin. The famous John Corvin Hunniades was of their race; history records his great actions in warring with the Turks, and his son, Mathias Corvin, was elevated to the throne of Hungary.

Exclusive of Transylvania, we find a great number of Wallachians in the Banat, where they are the most ancient inhabitants; we meet with them also along the frontiers of Transylvania, in the comitats of Arad, Bihar, Szathmar, and Marmaros. In general, the number of Wallachians is very considerable, and but little inferior, perhaps, to that of the Hungarians or Slowacks. In 1790 they rated their number, in Transylvania alone, at one million; at that time they were soliciting a participation in the privileges of the other nations. In Hungary, properly so called, they occupy 1024 villages along the frontiers of Wallachia and Transylvania. Their fecundity is very great, and in places where they inhabit, in common with the Servians, they supplant the latter, just as the Sclavonians do the Germans and Magyares. There are now among them, families of Russniacs, of Servians, and Bulgarians, which have lost every trace of their primitive language.

Next to the Sclavonians, the Germans undoubtedly form the most ancient nation of Hungary. In fact, many tribes of Germans settled in the western parts of the country, prior to the invasion of the Magyares, and especially after the destruction of the Awares. At the arrival of the Magyares, all the western part of the country, included between the Danube and the Save, had been subjected to the emperor Arnulph, and although that part was quickly wrested from him, a great number of the inhabitants would doubtless remain. But subsequently to the establishment of the Magyares, the number of Germans increased considerably. King, or Sainted Stephen, the primitive legislator of Hungary, feeling the necessity of augmenting the population, granted privileges to invite German colonists, which were carefully preserved by his successors. And thus, from the eleventh century, the Germans possessed settlements in different parts of Hungary. But it was more especially in the twelfth century, under king Geysa II., that they arrived in numerous bodies, so as to fill entire

comitats and provinces. They mostly fixed their residence in the northern provinces and in Transylvania, so that from Presburg to the frontiers of Wallachia, they formed a sort of military cordon. They came from all countries, from Flanders, the Netherlands, Alsace, and the southern parts of Germany; they are designated, however, by the general name of Saxons.

These ancient Germans have proved a valuable acquisition to the country, compensating amply for the privileges granted to them. The civil professions of the state of burgesses originate from them, and to them may be attributed the opening and labours of the mines. By the Germans, industry was introduced into the towns, and a commercial intercourse with the north created. They early adopted the manners and costume of the country, though partly mixed with their own; but in some cantons they have a particular mode, which appears odd, of wearing a white chemise over a dark-coloured *culotte*. The ancient colonists look with an evil eye on the fresh comers from the Palatinate, Franconia, Suabia, and Bavaria, that arrived in Hungary at the beginning of the eighteenth century, after the expulsion of the Turks. These last go by the name of Suabians (Schwaben) which is become a term of reproach, "he is a Suabian, es ist ein Schwabe."

The number of those whose vernacular tongue is German, is comparatively small; a circumstance which is owing to the influence of the Slowacks. In many places originally founded by the Germans, we at present only find Sclavonians. The vestiges are few of that great girdle that reached from the foot of the Carpathians into Transylvania. It is in the comitat of Lips, in the centre of the Carpathians, that they mostly abound, their number exceeding 60,000. There is another numerous assemblage of them in Transylvania; there the Germans, under the name of Saxons, occupy the local seats of Hermanstadt, Nagysink, Medgyes, Reps, Segesvar, Szaszsches, Szaszvaros, Szerdahely, and Uj Egyhaz, together with the districts of Bistricz and Kronstadt. Here they form one of the three nations, and possess particular privileges which rank them above the state of burgesses. There are also many Germans in the Banat, colonists of the eighteenth century. We trace them again in great numbers towards the frontiers of Austria, in the comitats of Œdenburg, Eisenburg, and Wieselburg, besides which, there are many Germans scattered through all parts of Hungary. Several are to be found in all the mining towns, and whatever depends on industry or trading concerns, in the free towns, is chiefly in the hands of the Germans.

In the Population of Hungary, other nations require to be mentioned, though their number be, comparatively, inconsi-

derable, some employed in husbandry and others in trade. Of the former, is a little colony of French, that, in the time of Maria Theresa, settled in the plains of Hungary, between the Maros and the Bega, in a marshy, but very fertile territory. We find them congregated in the little town of Hatzfield, in the villages of Charleville and St. Hubert, and in those of Nagyjetsa and Csadat, in the comitat of Torontal. There are others at Breztovaez, in the comitat of Bacs; this last little colony has, hitherto, retained its language.

Some few Italians yet remain in Hungary; it is these that have introduced the culture of rice and the rearing of silk worms. Their number was, formerly, much more considerable, when the Hungarians had kings and queens of Italian families, and when there was a trade with Venice. They are now nearly limited to the village of Charlottenburg, in the Banat.

Commercial pursuits have attracted into Hungary a number of modern Greeks, Armenians, and Jews. The modern Greeks, or Macedonians, are mostly engaged in commercial speculations, and much of the specie or cash passes through their hands. Some reside at Pest, and there is a pretty great number of them at Hermanstadt and Kronstadt, in Transylvania. Many have no fixed residence, but traverse the interior parts of the country, especially in the great plain. Among themselves they have trading companies that extend from Vienna throughout the Levant. Their stay in Hungary is but temporary, their place being filled up by others of their countrymen. They frequently acquire a considerable fortune in Hungary, commencing with a very small capital. These Greeks have a particular costume which appears distinct from all other habiliments. Large pantaloons descending into the boots, these last of different colours, a silk camisole or under waistcoat, a woollen or cachemire belt or girdle, a short riding coat or frock open before, and a red cap or coif.

The Armenians who came to settle in Transylvania, about the year 1672, and thence spread into the plains of Hungary, are also engaged in trade, and particularly that of cattle; they are in possession of a considerable part of the grazing lands. The individuals of this nation are, in general, isolated in the middle of the plains of Hungary, where they lead a sort of Nomade or pastural life. They have only one small parish, at Neusatz, opposite Peterwaradin. In Transylvania their number is pretty considerable, and especially in the towns of Szamos Ujvar, and Ebesfalva; elsewhere, they are scattered through the province, and here and there we meet with very rich families of them. Certain individuals, as also of the Ma-

cedonians, have been admitted into the corps of Transylvanian Noblesse.

The Jews form a very numerous body in Hungary, where their number amounted, in 1805, to 128,000; they must be considered as a particular people, as they marry only among themselves, and are not denizens in the eye of the law. In the middle ages, all the financial operations of the state passed through their hands; they only understood the art of coining, the rates of exchange, and the business of trade in general. The sovereigns, when their treasury was low, had no other resource than the speculations of Jewish capitalists; from these they obtained ready money, but it was by means ruinous to the state, though profitable to the speculators. M. Schwartner reports, that during the expedition of Andrew II., in Palestine, the finest domains or estates were alienated, and the royal rights, as to coinage and the salt duties, were transferred to the Jews, and that the dilapidation of the revenue made it necessary to declare the goods of the crown unalienable. The Jews were then excluded from the management of the finances; and later, under Lewis the great, their residence in Hungary was prohibited: but Sigismund, who was always in debt, re-established them in the kingdom, and in some measure legalised loans at usurious interest. The like disorders occurred under Lewis II., and in 1524, we find a Jew, named Isaac, at the head of the mint of Kaschau.

At present the situation of the Jews is very different. They are subjected to a *surveillance* rather rigid, which includes a particular tax, called the Toleration. They are prohibited by law from residing on the frontiers, as also from entering the mine towns. This extends also to several other places, so that, for the most part, they are held in little consideration.

The cantons wherein I observed the greatest number of Jews, are the frontiers of Galicia, and the banks of the Bodrog, in the eastern part of Hungary, and the comitat of Stuhlweissenburg, in the western part, and many remain at Karlsburg, in Transylvania; elsewhere they are scattered along the roads and in the villages, where they live in huts or keep little pot-houses. Many tramp about as pedlars, carrying on a small trade in wares of every kind. Their apparel has something in it odd, forbidding, and apt to excite distrust. It consists of a long robe of woollen or black silk, fastened about the body by a black-coloured girdle, a large broad-brimmed hat or high bonnet, of hair or black sheep skin, to which, add a long beard and an air of slovenliness in general.

In the last rank of human beings that inhabit the soil of Hungary, are the Zingares, by the Germans named Zigeuner,

and that pass in France under the name of Bohemians. These are very numerous in Hungary, but no certain accounts have been given of their origin. Grellnian's Researches make it appear probable that they are descendants of a cast of Indians, the Parias, that were driven from their country about the year 1408, during the conquest of India, by Tamerlane. Some authors consider them as Egyptians, and from this notion the name of Pharaoni, or Egyptians, has been assigned to them. It is certain that they speak a particular language, that their features are not European, and that their first appearance in Europe was at the beginning of the fifteenth century; about 1417, we find them first noticed in the history of Hungary. They have ever lived a wandering life, and the means employed to bring them within the pale of civilization have only reclaimed a small number that have settled, as husbandmen, on the frontiers of Transylvania. The rest ramble about, encamping in the middle of woods, or near villages, in huts which they speedily raise, and that are truly wretched and filthy. They are indolent and vicious, and only work to procure what is indispensably necessary. Some are blacksmiths, and forge nails, knives, and hatchets, which the women go and sell in the villages; others tramp from town to town, playing slight of hand tricks, or on some instrument to which the peasants dance. They go all covered with rags, and the women especially are very disgusting.

The number of these vagabonds has been very considerable; from a census ordained by the emperor Joseph, in 1783, it appears that they amounted to more than 40,000; but they are now much diminished, either from being dispersed in the neighbouring countries, or from gradually mingling with the peasants and settling in different places.

Such are the varying tribes of people confounded under the name of Hungarians. The mass of population, of which this assemblage consists, amounts to more than ten millions. According to M. Schwartner, the enumeration of them, in 1809, might be rated as under:—For Hungary, Sclavonia, and Croatia, not including the noblesse, the clergy, regiments of the line, or the military frontiers, 7,555,920; for the corps of noblesse, 325,894; for the clergy of all religions, 15,600; for the regiments of the line, 64,000; for the military districts of Hungary, 777,406; for the military frontiers of Transylvania, 137,041; and for the provincial of Transylvania, 1,501,106.—Total, 10,376,967.

This population, uniformly spread over the entire superficies, as it existed previous to the treaty of Vienna, in 1809, gives a mean number of 633 inhabitants to the square league, or 1790

per square mile. The extent of the kingdom is about 16,390 square leagues, of 25 to a degree, or 5900 square miles, of 15 to a degree. If this number should seem small in respect to France, which contains at least 1000 inhabitants per square league, it will be considerable, compared with the population of Sweden, Norway, Russia, &c. But the population of Hungary is not distributed uniformly, as supposed above; there is an immense surface, consisting merely of mountains covered with thick forests, besides arid plains and vast marshes that are no better than deserts. The population is, of course, much more condensed in the habitable places, where it varies, however, according to circumstances. In 1809, M. Schwartner calculated 990 inhabitants per square league, in the comitat of Œdenburg; 924, in that of Presburg; 858, in that of Zips; 743, in that of Zemplen, &c. He computed the population of Transylvania at about 800 individuals per square league, which number may be augmented, in different cantons, if the uninhabited parts be subtracted.

On the whole, the population of Hungary is evidently increasing, as appears from the census of 1787, compared with that of 1805; the latter gives a surplus of 439,131 individuals. Instances are afforded in the comitat of Bekés, which a century ago was an immense pasture ground, with a few wretched hovels, and now contains flourishing towns and villages, with more than 90,000 inhabitants. The Banat of Temes, which, setting aside the military districts, contained, in 1799, about 318,000 inhabitants, in 1785, had 550,000, and in 1805, 636,000. This rapid augmentation is partly owing to fresh colonies, and partly to the improvements of rural economy. These would produce advantages much more considerable, were encouragement given to the clearing of uncultivated lands, the draining of marshes, and the propagating of a taste for the arts and sciences; of this a great number of Hungarian lords begin now to be sensible.

Hungary is a country which contains landscapes and productions remarkable for originality, and its history has scenes of great interest. It is situated in the most temperate part of our hemisphere, and watered by one of the greatest rivers of Europe, with a number of tributary streams. The soil, in general, in the lowlands, possesses an uncommon degree of fertility, and the mountains, where, from their height, they are deprived of cultivation, are not without circumstances interesting to the traveller, and uncommon to the naturalist; these consist in the superlative abundance of their mineral riches.

As to the people, the best picture that could be drawn of

them, would be formed by an exposition of their actions. To get a just notion of the genius of the nation, we should consider them as exhibited at different periods. For eighteen successive centuries, they had to resist the united attacks of foreign or neighbouring nations; their resolution and firmness appear in numberless wars, and they uniformly preserved the same spirit. Their military occupation, during perpetual wars, gave birth to an anomalous character, which their history, in its various stages and incidents, best describes.

The conclusion of their wars with the adjacent nations, the establishment of peace, and their reconciliation with Austria, gave another turn to the pursuits of the nation and the spirit of its government. We then take a political survey of them, as emerging from barbarism and a degraded state of humanity, as framing laws and assuming some diversities of character, when the general face of their country had become serene, delivered from the storms and convulsions which had agitated or destroyed it. The forms of their government are monarchical, and their institutions feudal; they are, however, no longer in a state of slavery or comparative misery, but enjoy such blessings as the country affords. In the general economy and order of their domestic polity, their privileges are many and great.

In surveying modern times and more recent objects, the immense variety of natural productions offers reflections, descriptive of the country, and conduces to set it in its true light. Their gold mines, the only such in Europe; their iron mines, resembling those of Sweden; their copper mines, opals, and certain lands that apparently exhibit, in their composition, phenomena, the peculiar produce of this country: these, with their beautiful plains and fruitful valleys, with their rich soils, woods, and forests, yielding plenty and variety of fruits and game, give importance and value to the subject, and render it interesting to the naturalist, the philosopher, and to readers in general.

Hungary, notwithstanding, in its various relations, is one of those countries with which we have the least acquaintance. Its situation, at one extremity of Europe, in part surrounded by nations not the most civilized, communicating but little with such as are, it seems to have been so shut up, that the curiosity of travellers has been seldom attracted to it. More than a century has elapsed since its interior has enjoyed perfect tranquillity, and a free communication with the rest of Europe; yet the Hungarians have made few observations to surprise, enrich, or invigorate science or art, though they have the requisite materials within their power.

It will be easily conceived, that something necessary to direct the public judgment in these matters, might have been expected from the Austrians, but though the disasters of wars and revolutions are soon repaired, in a natural way, their moral effects are not easily effaced. The people of Hungary have long lived in an insulated state, indifferent to the progress of useful studies or knowledge, devoted to ancient customs, and subjected to prejudices which have hitherto been held sacred. To describe them has been deemed a difficult enterprise, from the diversity of their language, which a stranger must acquire, more or less, before he can decide—exalt narration to truth, or reject it as fiction.

Other circumstances contribute to prevent, or to retard the progress of a foreign traveller. Hungary lies out of the way of all frequented roads, and has none of those facilities of communication which other countries contain. From the privations to be expected, the most experienced tourist would feel a degree of diffidence in exploring such untrodden ground. The climate, too, has been represented as prejudicial to health, the people as cut off from the rest of mankind, half barbarous, and tinged with an antipathy to the visitors of all other nations.

These reports are exaggerated; much, indeed, must be left to time, habit, education, before society here can be freed from its incidental blemishes, can rise to that superior civilization, elegance, and embellishment, which are scattered over the face of some other countries.

To compensate for such defects, Hungary teems with materials and stores of curiosities which, duly methodised, would furnish a subject interesting to science and to men of letters. Among these it may be said, that as to the virtues of civil life, the people hold a distinguished rank. They retain, in their highest degree, a patriarchal hospitality, a noble frankness and simplicity of manners, such as an instructed mind would naturally turn to study. From every gentleman, or rather from every Hungarian, a stranger would meet with assistance, protection, and friendship, where, indeed, he would be least looking for it.

There have not been wanting Works, however, treating of Hungary; some describing the different branches of its political economy, others investigating its antiquities, geography, numismatics, rural economy, natural history, and mineralogy. On this last head, Hungary is deserving of particular notice, being the only country on the continent of Europe that has mines of gold and silver. These have been worked for ages, and it has been found, by M. de Humboldt, and other scientific characters that have visited the mines in America, that the

metallic earths of Hungary strongly resemble those of Mexico and Peru, and that all the geological circumstances are in accordance. This observation is too remarkable not to excite the curiosity, or occasionally the suspicion, of the penetrating naturalist.

The reflections here suggested had been duly appreciated by M. the Count de Bournon, director of the king's cabinet of geology, and he speedily procured his Majesty's consent and protection, that I should visit other countries, to collect facts, useful, interesting, or new, on which a system of geological science might be planned. Hungary was the last country that I explored; my labours in it were ended towards the close of the year 1817, but previous to my quitting it, I made it my business to collect materials of miscellaneous information. This I frequently obtained, by visiting a number of antique castles, seated in the midst of surrounding forests, and which had stood numerous assaults during the wars of eighteen centuries. The following contains a concise compilation of what is desirable in former authors, or the result of my own diligent investigation.

GEOGRAPHICAL NOTICES RELATIVE TO HUNGARY.

The kingdom of Hungary once included, in the conquests of its different kings, Bulgaria, Wallachia, Transylvania, Moldavia, Galicia, Hungary properly so called, Sclavonia, Servia, Bosnia, Croatia, and Dalmatia, with some parts of Austria and Moravia. But in the course of events, Bulgaria, Wallachia, Moldavia, Servia, Bosnia, and Turkish Croatia, have been subjected to the Ottoman empire, the archduchy of Austria* has resumed its detached part, Moravia is dependent on Bohemia, Galicia, which the kings of Poland had conquered, is re-united to Austria, and Transylvania, raised into a principality, has been ceded also to Austria, retaining its particular rights.

What constitutes the present kingdom of Hungary, is Hungary properly so called, and Sclavonia, with parts of Croatia and Dalmatia. Prior to the year 1809, Hungary extended to the Adriatic, and took in a part of the islands that lie along the eastern coast of that gulf. But by the treaty of Vienna, in 1809, Hungarian Dalmatia, the greatest part of Croatia and the Banat frontiers were ceded to France, and, together with Carniola and a part of Carinthia, were consolidated under the name of the Illyrian provinces. The kingdom of Hungary

* The name of Austria is a corruption of the German word Œstreich, denoting kingdom of the east, which was given, in the tenth century, to the eastern part of the German states.

then terminated at the Save, near the town of Agram* (Zagrabia) and this forms the present limit; for, although Austria has recovered all that it lost, from the Save to the Adriatic, these provinces have not been reinstated in the kingdom of Hungary.

The provinces, collectively, comprehend a surface of 5597 German geographical square miles, on which are found 90 cities, 706 towns, and 14,134 villages and hamlets.

Hungarian Croatia, (Horvat-Orszag, Hung. Kroazien, Germ.) and Sclavonia, (Tot-Orszag, Hung.) the extent of which last is very diminutive, are both included between the Drave, the Save, and a part of the Danube that passes between the mouths of these two rivers, from Eszek to Belgrade; Croatia forms the western part, and Sclavonia the eastern.

The principality of Transylvania† (Erdely-Orszag, Hung.) is bounded, on the north, by the comitats or counties of Marmaros and Szathmar; on the east, by Moldavia; on the south, by Wallachia; and on the west, by the Banat and the Hungarian comitats of Arad and Bihar; or rather, it is encompassed with groupes of mountains stretching in those directions.

Hungary alone occupies a space nearly three times as large as the above provinces, taken together. It reaches from the Danube and the Drave, to the lofty mountains that form the limits of Austria, Moravia, the two Galicias, and the Buckawine.

With respect to the configuration of the surface, here are mountains, whose summits are buried in everlasting snows, and vast plains, but little above the level of the sea. The mountains form a girdle round the country, as if to separate it from all others; it is open only on the south side, opposite the Ottoman empire.

There are two considerable ranges of mountains distinguished from all others by their elevation, the mountains of Transylvania to the S. E., and the groupes that form the boundaries of Moravia and western Galicia. These two grand masses, in relation to Hungary, appear like two citadels at the entrance of an immense gulf. This part of the girdle has been called the Carpathian Chain, though, strictly speaking, the name should be limited to the most elevated parts of the north west.

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* The comitat of Zagrabia, which anciently covered 300 square leagues of country, lost, at that time, 213 of them. More also have been taken away by the Croat regiments, and the kingdom of Hungary has had a total loss or deprivation of 844 square leagues.

† This name was given to the principality, from its situation beyond countries covered with wood, that lay at the eastern extremity of Hungary, properly so called, and from itself consisting chiefly of forests. The Hungarian epithet, Erdely, comes from Erdo, a forest; Erderly-Orszag signifies a country or kingdom of forests.

The limits of eastern Galicia are formed of mountains of sand, with here and there some points of solid rocks interspersed. They constitute, apparently, a sort of talus, pretty uniform, from one extremity to the other.

Though the mountains cover an immense extent of the surface, there are also vast plains that become the centre of the country. Some of these serve as granaries for such cantons as, from their elevation, have not the benefits of culture.

The principal rivers which either pass through the Hungarian States, or compose its boundaries, are the Danube, the Theysse, the Save, and the Drave; into these a number of others, more or less considerable, disembogue, but all ultimately fall into the Danube.

The Danube, (Duna, Hung. Donau, Germ.) next to the Wolga, is the largest river in Europe. It rises in the Black Forest, and after traversing Suabia, Bavaria, and Austria, passes on one side of Hungary, at the point where it receives, on its left, the river Morave, or March. Below Presburg, it contains a great number of islands, and in its entrance and passage through the plains of Hungary, its waters spread over a large tract. At Neu-Orsova, it quits the Hungarian States, and proceeding through the vast plains of Wallachia and Moldavia, empties itself into the Black Sea.

The course of this river is very tranquil through Hungary, the country being flat, and the descent of the waters inconsiderable. The banks are frequently overspread with immense marshes that fatigue the traveller's patience with a disagreeable monotony. But between the mountains of the Banat and Servia, where the river is much straitened, it makes its way with a tremendous rapidity, which, with the shoals scattered here and there, renders the navigation extremely dangerous.

The Theysse, (Tisza, Hung. Tibiscus, Lat.) next to the Danube, is the most considerable of the Hungarian rivers. Its source is at the extreme limits of the Marmora, and the Buckawine, and after crossing the vast marshes of the comitats of Szathmar and Szaboles, at length enters the plains of Hungary, across which it proceeds to the Danube, and joins it between Semlin and Peterwaradin. In its course it receives all the waters of Transylvania, and the greatest part of those of the northern mountains of Hungary. The rivers of Transylvania are the Syamos, the Koros,* and the Maros, which last

* The whole territory traversed by the three branches of the Koros, (called the Rapid, the Black, and the White Koros) is extremely marshy. The baron de Vay calculated the lands covered by the Rapid Koros alone, at 55,000 acres, and the moist lands occasionally inundated, at 70,000.

quits Transylvania below Dobra, and passing through the plains of Hungary, falls into the Theysse, opposite Szegedin. Among other rivers that issue from the northern mountains of Hungary, are the Bodrog and the Hernat, with smaller streams, such as the Erlau, the Zagyva, &c. The Theysse, after its junction with the Maros, is not inferior to the Seine, at Paris. This river, with the Maros, the Koros, the Szamos, and the Bodrog, are navigable in detached parts of their course, but not throughout. Many attempts have been made to render some of them serviceable to navigation, by canals of communication, but hitherto they have proved fruitless.

The Save (Szava, Sclav. Sau, Germ.) which forms the southern limit of the Hungarian States, rises in the mountains of Carniola, crosses Styria, and enters into Croatia, to the Hungarian part of which it serves as a boundary. It frequently overflows, covering all the low tracts about it, and leaving water that turns stagnant a great part of the year. It is navigable nearly throughout, and is the channel by which grains, tobacco, &c. are exported to Dalmatia and Italy.

The Drave (Drava, Sclav. Drau, Germ.) rises on the frontiers of Tyrol, crosses Carinthia and Styria, enters the Hungarian States, and proceeds in a S. E. direction for the Danube, into which it falls below Eszek. This river forms the natural boundary between Hungary and the provinces of Croatia and Sclavonia.

There are two lakes in Hungary of considerable magnitude, the lake Balaton, and the lake Neusiedel. The former is about sixteen leagues from S. W. to N. E.; its greatest width is nearly three leagues. Its situation is between the comitats of Szala and Sumegh. The lake of Neusiedel, from N. to S., is about eight leagues, its greatest width two and a half. Its situation is between the comitats of Œdenburg and Wieselburg. There are many other collections of water, of a smaller description, in the mountainous regions.

Marshes are uncommonly numerous in Hungary, and particularly in the middle of the Great Plain, on the banks of the Theysse and the Danube, as also in the large vallies, through which run the Drave and the Save. Baron Lichtenstern estimates the surface of the lands overflowed, at 300 square leagues, or 108 geographical German square miles. Several lords have successfully attempted the draining of certain marshes; their example duly imitated, would restore an immense number of acres to cultivation, and secure the inhabitants from putrid miasmata, to which they are now liable. This malign influence, however, is confined within a compass of about 300

square leagues, and in more than 15,000 square leagues the climate is as wholesome as in France or Germany.

It is wrongfully that Hungary has been called the grave of foreigners; the climate, in general, is salubrious, and the natives retain their health and energy as long as in other countries. Precautions are requisite here, but not more than in other warm climates. The days are often extremely hot, and the nights cool; this unequal temperature makes plenty of warm clothing necessary. The quality of their wines, though excellent, is very spirituous; excess in the use of them would give rise to inflammations, or other serious complaints. I can vouch from experience, notwithstanding all the fatigues and privations I have undergone, during my residence in the country, that I never felt the effects of insalubrity, as represented in books, and of which I had heard a thousand absurd tales, at Vienna.

Hungary, properly so called, was divided, by former geographers, into upper and lower, or, which comes to the same, and is less liable to error, into eastern and western. The line of demarcation was the Theysse, which appears nearly in the centre of the country, and which, from Szolnok, turns from north to south. Hence, an ideal line is traced across the mountains to the centre of the Carpathians. The parts east of this line had the name, improperly, of Upper Hungary, and those to the west, of Lower Hungary, no less inapplicable. This division is now abandoned.

The territorial divisions of the Hungarian States are civil and military. These last, on the frontiers of the Ottoman empire, form a cordon against invasion; the inhabitants are both soldiers and husbandmen. They are designated by the name of Regiments, and are twelve in number. In Croatia, the regiments of Koros, and of St. George. In Sclavonia, do. of Gradiska, Brodi, and Peterwardin; in Hungary, do. of Tsaikists, German Banatic, and Wallachian Illyrian. In Transylvania, the first Wallachian regiment on the frontiers of Wallachia; second do., on the frontiers of the Buckawine; third Szekler regiment on the frontiers of Moldavia, and the second Szekler regiment on the frontiers of Moldavia and Wallachia. One of these, the battalion of Tsaikists, derives its name from Tsaikes, barks to defend the passage of the river Danube; this battalion consists of the boatmen that are to guard it.

The civil territorial divisions take the name of comitat, from the Latin comitatus, or otherwise, that of district. Of these, Proper Hungary comprises forty-six. The names are, Abauj,

Arad, Arva, Bacs, Barany, Bars, Bekes, Beregh, Bihar, Borsod, Csanad, Csongrad, Eisenburg, Gomor, Gran, Heves, Hont, Komorn, Krasso, Lipto, Marmaros, Nograd, Nyitra, Œdenburg, Pest, Presburg, Raab, Saros, Stuhlweissenburg, Sumegh, Szaboles, Szala, Szathmar, Temes, Thurotz, Tolna, Torna, Torontal, Trentsen, Ugots, Ungh, Veszprim, Wieselburg, Zemplen, Zips, and Zolyom.

There are, besides, certain detached lands, insulated within the comitats, and governed by particular laws. Some depend immediately on the king, others on the Palatine. Among the former, are the free towns of Zips, scattered in the comitat, but composing an assemblage or district. The Haidonical towns, in the country of Debreczin, that furnish a particular foot militia, are under the royal authority. The districts that depend on the palatine, are Little and Great Kumania, and the Jaszons, all three in the Great Plain, and insulated within the comitats of Pest and Heves. Sclavonia and Croatia have each three comitats, Posega, Syrmia, and Verocze, for the former, and Koros, Varasdin, and Zagrabia, for the latter.

Transylvania is divided into three nations, the Hungarians, the Szeklers, and the Saxons, and contains twenty-nine civil divisions. For the Hungarian nation, eleven comitats, Lower Alba, Higher Alba, Doboka, Hunyad, Klausenburg, Kraszna, Kukullo, Szolnok Interior, Middle Szolnok, Torda, and Zarand, with the two districts of Fagaras, and Kovar.

The Szekler nation has five local seats, Aranyos, Csik, Haroinzek, Maros, and Udvarhely.

The Saxons have nine seats or local portions, some of which are extremely impoverished, from the long wars, which have left marks of their desolations. The names are, Hermanstadt, Nagysink, Medgyes, Reps, Segesvar, Szaszebes, Szaszvaros, Szerdahely, and Ujegyhaz. There are, besides, two districts, Bisztricz and Kronstadt.

OF THE PRINCIPAL LANGUAGES AND RELIGIONS.

It will be readily conceived, from the diversified classes that inhabit Hungary, that there must be a confusion of tongues; in fact, such has been the difficulty of a mutual understanding, that, for ages, the Latin has been in use for matters of common concern, both with the government and individuals. Notwithstanding which, there are really in Hungary but four constituent languages, the Sclavonian, the Hungarian or Magyare, the German, and the Wallachian.

The Sclavonian is one of the most ancient languages of Europe, and the most extensively spread, in its different dialects. Those of the northern people that had been civilized

by the Romans, and passed under their name; such of the Europeans as were ever at war one with another, such as rose up after the invasion of the Huns and Avari, these all spoke the Sclavonian language. One of its dialects, the Bohemian, had its golden age in the fourteenth century, and in the beginning of the fifteenth, when, agreeably to the statutes of the Golden Bull of Charles IV., 1359, emperor of Germany and king of Bohemia, every elector of the empire was to learn the Sclavonian Bohemian language. At the time of the council of Constance, in 1414, Bohemian literature was in a flourishing state, while in Germany and France the morning of letters had scarcely begun to dawn. With the Sclavonian tongue, a traveller might pass through Illyria, Dalmatia, Croatia, Bosnia, Servia, Hungary, Bohemia, Moravia, Silesia, Poland, and Russia, as the languages in all of these are but dialects of it. Most of the Hungarians that have devoted any time to literature, are acquainted, at least, with the three radical languages, the Sclavonic, German, and Latin; and among the noblesse, I have met with such as speak six or eight different languages.

The Hungarian or Magyare language, is *sui generis*, and has no more affinity with the German or Latin than these have with one another. There are a number of words introduced from other languages, such as Tatar, Turk, Persan, Arab, with others of Finland extraction, also Sclavonian and German words, more or less modified; but it has a particular and Asiatic character in its suffixes and affixes, at the end of substantives or verbs, in lieu of pronouns. The language has numerous vowels, and there are few words that a Frenchman would not easily pronounce, though a German could not without difficulty.

The Wallachian language is a mixture of Sclavonian and Latin, but strangely mutilated. In more than half of its expressions, it bears a striking analogy to the *patois*, in the south of France and Italy; with due attention it is easily acquired.

In the Hungarian provinces, we meet with little less diversity of religious creeds, than of its population. Each nation, each colony, has its particular mode of worship. The inhabitants, in general, profess the Christian religion, but are divided into a number of different sects. Here are Roman Catholics, Orthodox Greeks, Schismatic Greeks, Lutherans, Calvinists, Socinians, and Anabaptists; these, with the Jewish religion, comprehend the totality of creeds.

The Roman Catholic religion is that of the state, and of the great body of the people. Its establishment may be traced to the tenth and eleventh centuries, when the Magyares, who had overthrown its first altars, began to grow civilized.

The Greek Orthodox church, which was raised about the same time, has its adherents in most of the Russniacs, Wallachians, and Servians. They are subject to two bishops, one of whom resides at Unghvar, and the other at Grosswardien, both suffragans to the archbishop of Gran. This church has its members also in Transylvania, with a few in Croatia and Sclavonia.

The Schismatic Greeks comprise almost the whole of Sclavonia, and the major part of the Wallachians, of Transylvania and the Banat, besides others in some of the Hungarian comitats. Their patriarch, similar to an archbishop in the Roman church, resides at Carlowitz, near Peterwaradin; he has seven bishops under him.

Lutheranism has a number of partisans, that persecution only augmented and made bolder. Tranquillity was completely restored, by the toleration edict of Joseph II., and Lutherans are now to be found in every part of Hungary, especially in the northern parts where the Germans have settled.

Calvinists are more numerous than Lutherans, and abound chiefly in the plains of Hungary, and on the frontiers of Transylvania.

The number of Socinians is very small; they are chiefly found in Transylvania. That of the Anabaptists is still less; a few are found in the comitats of Presburg and Nyitra.

The Jews are tolerated, and have synagogues, but are divided, as in other countries, into two sects, the Karaites, whose Scripture is confined to the books of the Old Testament, and the Rabbinists, who give almost equal authority to the Talmud.

These religious denominations are sometimes more especially congregated in certain cantons; here we meet with a Roman Catholic village or an Orthodox Greek, there a Schismatic Greek, or one of the reformed religion; sometimes we find in the same village, three or four churches of different communions, though it may not contain fifty houses. But, in general, the Catholics exceed, and we may rate them, at least, at one half of the population, or at five millions, including the Orthodox Greeks, whose number amounts to six or seven hundred thousand. The Schismatic Greeks may amount to a million and a half, and the reformed religion may take in two millions and a half, whereof the Calvinists form two thirds.

OF THE FORM OF GOVERNMENT.

Hungary has been governed, for some centuries, by the House of Austria, yet it remains a distinct kingdom, with particular laws, magistrates, and privileges. By special treaties, the

crown is declared hereditary in that family, and Hungary forms a part of the Austrian states, while the family remains on the throne; in the event of its extinction, the Hungarians would recover their right of election. At his accession, the hereditary prince is installed and crowned king of Hungary, independently of other states subject to his dominion. The coronation has its particular ceremonies, in accordance with the privileges of the nation, and is performed in presence of the states, consisting of the clergy, the noblesse, and the burgesses of the free cities.

Excepting the palatine of the kingdom, who is elected by the states conjointly, the king may dispose of the principal places and offices, but the person nominated must be noble and an Hungarian. He can also grant titles and letters of nobility, and the right of denizenship to noble foreigners. He disposes of all the ecclesiastical benefices, nominates to the abbeys, chapters, bishopricks, and, in the vacancy of any see, has the profits till the next installation. In all matters connected with public instruction, his power seems to be unrestricted. He can declare peace or war, dispose of the military force, and order a levy, in mass, by the nobles (called here an *insurrection)*. In other respects, he retains only the executive power, which he is to exercise according to certain forms, with the right of proposing measures adapted to various exigencies. None of the existing laws can be modified, nor can any new law be established, without the consent of the nation. No extraordinary contributions, no levy of troops—in a word, nothing can be done without an assembly of the states, or diet, wherein the clergy, the noblesse, the great officers of state, the chapters, and the free royal cities have the right of sitting, or of being represented.

This numerous assembly, which the king can convoke, prorogue, or dissolve at pleasure, but which must be convened, at least, once in three years, is divided into two chambers. The former, or upper chamber, consists of *magnats*, that is, of the archbishops and bishops, the princes, counts and barons, and the governors of counties. The second comprises the abbots, and others of the higher clergy, with the deputies of the counties, of the chapters, and of the free royal cities, and the representatives of the magnats who cannot attend in person. These two chambers form, in reality, but one body, which has no other interest but that of the nation at large.

In this assembly, all the wants of the state are discussed and provided for. The king is there either in person or by commissioners. His propositions are considered, the levy of troops is fixed upon; the noblesse tax themselves with such

charges as war or other circumstances may require. But the king has the right of a negative on the decisions of the diet, nor can any be in force till they obtain his sanction, when they are published in his name throughout the kingdom.

In his exercise of the executive power, the king's organ is a particular council, altogether independent of those which regulate the other parts of the empire. This is called the chancelry of Hungary, is resident at Vienna, and constitutes the first authority of the kingdom. The lieutenancy of the kingdom, or council of state, at Buda, over which the palatine, or viceroy, presides, has the direction of affairs relating to the interior. To this board the chancelry transmits the king's orders, the legality of which it has a right to investigate, and to forward them afterwards to the public functionaries. Every comitat or county has a governor, who corresponds, directly, with this central administration, which, moreover, has under it all that concerns the police, justice, the execution of government orders, and of those of the county.

The administration of the military frontiers depends immediately on the Aulic council of war at Vienna; every regiment has a commandant, who has under him a number of officers. All business is transacted in a military way, the people being soldiers, though attached to and cultivating the soil.

The legislative code consists of laws enacted under different sovereigns, and accepted, generally, by the states, but various nations or divisions have their particular laws, and certain privileges granted to them separately, but assured to them, subsequently to their union, as a nation. Some among them are entirely governed by the Germanic code. Each of the states of the kingdom, each division of people, and, indeed, every city that has special laws, has its particular magistrates and judges, acting only among themselves: there lies an appeal, however, to the supreme courts, for cases not especially provided for.

With respect to the public revenue, it depends on the produce of the mines, and on the taxes which are levied on individuals, on cattle, on land, and articles of trade. There are no monopolies on the productions of the soil, but the annual contributions fall exclusively on the burgesses of the free towns, and on the peasantry; the noblesse are exempted, having the right of taxing themselves. The gentlemen, however, contribute towards the temporary taxes fixed by the diet, for extraordinary occasions, as also to the charges of a war, when within the kingdom, and they arm a quota of men proportioned to their estates. Indeed, they are to rise in mass, when called upon by the sovereign, in defence of the state. This

obligation was truly burthensome, in the disastrous times, when the Turks were making continual inroads, Hungary being the barrier of Europe against those infidels.

The noblesse enjoy very great privileges; besides holding all the places of public functionaries, being exempt from all the permanent contributions, sitting in the diet, and having a considerable number of votes there, they only are entitled to have lands in possession. The burgesses can only possess landed property within the territories of the free cities, and the peasantry have little other property than their moveables. The Hungarian gentleman is not, however, absolute proprietor of his possessions; in some respects, he has only the usufruct, for on the extinction of male issue, the property reverts to the state, which may dispose of it in favour of another family. Seigniorial lands cannot be sold; they may be mortgaged, and the original proprietor, or his children, may reclaim, on reimbursing the sums advanced. This is attended with an advantage to decayed families, and there are many examples to attest it.

So many privileges exclusively attached to the noblesse, are at variance with the notions now prevalent in most other parts, but the peasant here is not exposed to such inconveniences as might be imagined. There was a time when the Hungarian peasant was really attached to the glebe; at present, he is free, and contentment appears in the cottage no less than in the palace. Such is the empire of the laws and of custom, that the peasant's lot in Hungary is often superior to that of the same class in countries that have more freedom. The noblesse have possession of the soil, and the lord is obliged to divide the land into farms of a certain proportion, and these he lets out to peasant cultivators. According to an *urbarium*, published under Maria Theresa, wherein all the customs of long standing were combined into a law, a complete farm was to consist of a mansion, with courts, barns, a garden, a certain number of acres of arable land, (forty-four Parisian) and a smaller for meadows, in the proportion of six to forty-four. The peasant takes a real interest in the soil, but for his location, he pays in daily labour and other services. One who has a complete farm owes to the lord, as services, fifty-four days' labour in a year, with a cart and a double train of horses or oxen. The farmer is also to deliver in annually, the ninth part of the products of the land, (for the first crop only, for if there be a second he pays nothing) the ninth part of his lambs, kids, honey, &c. He has to support other charges fixed and proportioned to different rights which he may acquire. But, if, with permission, he clears a portion of waste land, he pos-

sesses it without services or obligation, and the lord can only resume it by granting a suitable indemnification.

Thus, the Hungarian peasant, in some measure, enjoys the fruits of his labour. He may dispose of eight-ninths of the product of his crops, and he becomes proprietor of moveable goods, flocks, and herds, &c. which pass to his children. In addition to which, if from accident his crops should be lost, or his cattle destroyed, the lord must furnish him with sustenance, and even pay his debts and discharge other engagements, which he may have contracted with the seignior's approbation.

The peasant who has no lands to cultivate, suffers no disparagement on that account. If he dwells in a cottage, the seignior erects it, and supplies materials for its repairs; the service due is eighteen days' labour in a year. If he has a portion of land besides, he contributes the ninth part, either in stock or money, and his service of days' labour is only due when the ground is, at least, one-eighth of what would constitute a complete farm.

On the whole, the condition of the peasant is not inferior to that of many farmers in France.* The impossibility of acquiring land is matter of regret, but the peasant, with some formalities, may become a proprietor in the territory of the free cities.

The seignior is responsible for all that passes on his domain; complaints against the peasants are lodged with him, and he may be sued in the county court, or in the supreme court, for redress. He maintains a sort of police, and some have the right of criminal justice, but nothing is done in an arbitrary

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* In the south west parts, the farmer has no landed property, but owes services to the proprietor, from whom he receives annual wages, the rate being invariable, in abundance or scarcity. The farmer receives 200 francs in money, 13 hectolitres (about 1300 English quarts, more or less) of wheat, 16 hectolitres of maize, and 13 of rye; 2 barrels of wine from the press, 1 hectolitre of salt, 20 pounds weight of oil for eating, 20 do. of oil for burning, 6 cart loads of fire wood, and 1 tenement for his family. The whole, taken at a medium, may be valued at from 8 to 900 francs.—These disbursements are indispensable on the part of the proprietor.

These advantages are on the side of the farmer, who seems hereby assured of the means of subsistence, but he has no chances of better fortune derivable from his industry, and is merely a tenant at will. Here the Hungarian peasant has an advantage, for the lord cannot dismiss him from the ground he occupies, except for bad management or conduct. An Hungarian farm, comprising an extent conformable to the urbarium, may be valued at from 15 to 1700 francs. The fifty-four days' labour, and the product of the ninth part, cannot equalize this sum, and in those parts of France where labour is dearest, would not rise to above 500 francs. The clear ninth produce at the highest, would only be from 2 to 500 francs; there would, consequently, be a benefit of from 6 to 700 francs, to be added to the eight-ninths remaining of clear produce, that will belong to the peasant.

manner. In respect to police, every village has a kind of judge, elected in a meeting of the inhabitants, out of three individuals presented by the seignior, and often from among themselves. To enforce execution, unless for causes or offences of minor import, the seignior convenes a court of justice, which pronounces legally on the case, or refers it to the county court.

From the forms of government, and the civil constitution of the kingdom, the principles of which are analogous to those of the most flourishing states, we might expect a high degree of civilization, and are astonished to find the tardy progress of letters, sciences, arts, industry, and commerce. To these, enlightened men of all nations are now directing their attention, and as the Hungarians are no longer in dread of revolutions, their melioration may be looked for. During the last thirty or forty years, the lords have begun to apply themselves to study, endeavouring also to diffuse the means of useful knowledge, and laying out their money to excite a spirit of industry. In this respect much has been done, but much more remains to do, and especially in matters wherein a government may proceed more effectually than individuals. Public instruction is much neglected, and excepting a few establishments which are very inferior to those of other countries, the youth here find it impossible to acquire learning, or even the elements of it, in a correct manner.

In the produce of general industry, the condition of this country is deplorable. With the exception of articles of the first necessity, manufactured in the towns where most of the workmen are Germans, others of almost every kind are imported from Austria. The few manufactures in Hungary are of inferior execution, and altogether inadequate to the consumption. There is reason, however, to hope that a change will take place for the better. There are now some manufactures of cloth, the most considerable of which are at Kaschau and Gacs, in the comitats of Abauj and Nograd. There is one at Œdenburg, on the lake of Neusiedel, where the finest cloths are made, and some, but inferior, at Modern, Tyrnau, and Skalitz; all others are of the coarsest description, and the men employed very few. The comitat of Zips has many manufactures of linen cloth, and this business is carried on also, in the most northerly mountainous parts, and at Kesmarck. There are bleaching grounds at Rosenau, and within a few years some cotton works have been raised, as at Sassin, in the comitat of Nyitra, and at Œdenburg; they have a pretty extensive sale. Fifty or sixty years ago, certain silk works were introduced with much zeal, but the fabrics, and the culture

of worms and mulberry trees, are dwindled to an inconsiderable number. A few paper mills are scattered about the country, but the paper is very bad, and the quantity small. At Œdenburg are some brandy distilleries and a sugar house; also works for linseed and turnsol oil, and for snuff and tobacco, which last are in great reputation, and have a sale proportionate. The tanneries are pretty numerous, and their leather, dressed pretty well, forms a considerable article of exportation. The potteries are also pretty numerous; delft ware is made at Buda, Kaschau, Papa, Dotis, and at Holics, on the frontiers of Moravia; this last is a very ancient establishment. At Debreczin are some houses for making common glass, and for making soap; and there are a few alum works, the most valuable of which are in the comitat of Beregh.

If the productions of industry in Hungary are of minor importance, if they are inadequate to the internal consumption, its natural productions more than compensate. These are in such abundance, that the annual exportation is considerable. The dealings, however, in them, are mostly in the hands of foreigners, who, after amassing fortunes, return into their own countries to enjoy them. It gave me pain to find such a number of foreign traders selling their goods as dear as possible, and contriving, by various expedients, to render themselves necessary. This being the case, when are we to see public attention directed to the making of roads, the construction of canals, and rendering the rivers navigable? Several attempts have been made, and projects, at different times, laid before government, so far as to enter on the execution, but from the want of public spirit, or the difficulty of exacting sacrifices from the mercantile class, which are for grasping temporary benefits in preference to future good, most of these improvements have sunk into oblivion, and if actually commenced are now abandoned.

NATURAL PRODUCTIONS.

In respect of these, no country in Europe is more favoured. The abundance is such, compared with the adjacent countries, that we no longer wonder at the old national adage, "Extra Hungariam, non est vita, si est vita, non est ita." "There is no living out of Hungary—or, no living can compare with that in Hungary." In the southern and eastern parts of the Great Plain, the fertility is prodigious; so also on the banks of the Theysse and the banks of the Koros, in the comitats of Temes, of Torontal, Csanad, Bekes, Bacs, Syrmia, &c. But besides these places, grain of every species is cultivated with great advantage in all the southern parts of Hungary, of Transyl-

vania, Sclavonia, and Croatia; and, indeed, wherever the height of the mountains or encroachment of the forests does not affect the temperature. In various parts, where corn does not thrive, they grow barley, rye, oats, and sarrazin, or black wheat (polygonum fagopyrum). In good years, they export more than 6,000,000 bushels of wheat into the neighbouring countries. What would the produce be, if agriculture, which is here in its infancy, were on a level with that in other countries?

Besides the Cereal plants (corn, and maize, &c.) millet and rice are cultivated in Hungary. Maize is grown on a large scale, in the Banat, in Croatia, Sclavonia, &c., and in less quantities in almost all the flat country of southern Hungary. In Transylvania it is the main article of sustenance to the Wallachians and Russniaks, who make a kind of gruel with it; also crumpets baked in the ashes, and even bread, which would be pretty good were it rightly prepared. The ears of maize mixed with water, are so dressed as to form a sort of national meat; it is, in fact, very good eating, and a stranger may readily use himself to it, although it does not appear at the tables of the great lords. Millet is generally cultivated in the same places as maize, but especially in the more southern parts. As to rice, it is grown in the marshy districts of the Banat; there are rice plantations also in various other parts. The baron de Vai had it in contemplation to form rice beds in the tracts bordering on the three branches of the Koros; a measure which would add immensely to the culture.

The vineyards of Hungary are in high repute, and their wines constitute one of the most important branches of their commerce. The vine is cultivated in all parts of Hungary, excepting the most northern provinces and the most elevated situations. The quantity of different wines made and exported into all the adjacent countries is immense. The white wine of the country of Tokai, about the borders of the Theysse and the Bodrog, is well known; in point of excellence it ranks high. But the red wine of Menes, in the comitat of Arad, of a very different gust, is not at all inferior, and is preferred by some epicures. Besides these, there are many that have a well-merited reputation. Such as those of Œdenburg and Rust, on the lake of Neusiedler, with others too numerous to quote. In general, Hungary takes the lead even of France, in the variety of its wines; it has many not unlike our best Burgundy, from along the Rhone, &c.; also others like our sweet and our heady wines, but there yet remain others that have no similitude whatever to any wines, the growth of our vineyards.

M. Schwartner calculates the value of the annual growth, at a hundred and ten millions of florins, (289,300,000 francs) but he justly observes, that the quantity aimed at for exportation is too considerable, and that where the wines are indifferent it would be better to attend to the culture of grain.

Tobacco is another production of no small importance; its consumption being general throughout the country, and its excellent qualities making it a desirable article of export. No restraints are laid on the cultivation, but to enter Austria, exorbitant duties are imposed. Hence, the peasant can only gain a very moderate profit from his produce. After providing for the internal consumption, he must compound for the surplus with the Austrian officers, who go about the country and often buy up the tobacco before it is ripe.

In Transylvania are large plantations of tobacco, which is in great repute, but whether it be preferable the consumer must decide. Of the different kinds of snuff, those of Transylvania and of Fuzes Gyarmath appear to be the best. Tobacco for smoking is not subject to any very particular process, but the leaves are merely dried and chopped, or reduced to powder. Hereby it escapes that strong scent which the same sort prepared in Austria emits, and it takes an agreeable odour somewhat like the perfume of incense. The snuffs are never black like those in Austria, but take a yellow or chesnut brown colour; they are extremely fine, very piquant, and perfectly free from that ammoniacal smell, incident to snuffs prepared in the other parts of Europe. They are much valued.

The interior consumption of tobacco is immense, for the men almost universally, and youths of fifteen or sixteen, use it to excess. If, at a moderate estimate, we suppose one-third of the population in the use of smoking it, or of taking snuff, and each individual to consume a pound a month, the total would amount to 207,000 metrical quintals, or about 415,000 quintals, fixing the quintals at the ancient pounds of Paris. The exportation is also very considerable, and according to M. Schwartner, amounted, in 1802, to 187,200 quintals (ancient pounds of Paris.)

The immense forests that cover the mountains in the west, north, and east of Hungary, would acquire additional importance and value, were forges erected among them, and roads and canals made for the carriage of their materials. The woods rot in the mountainous parts, while the price is high, and getting dearer every day, in the plains. Besides timber for building and fuel, there would be supplies for the marine, as in those eternal forests of pines, are many straight and very beautiful trees that would serve for masts. But from the im-

provident management in a number of places, no other advantage is obtained from the wood than burning it to get pot ash from the cinders. Thus the major part of the forests, in the higher regions, are lost to the state, and in the lower parts, for want of proper modes of cutting, frightful mutilations and havock take place. This has been found out too late, and several establishments on the roads, or at the extremities of towns, are in danger of being broken up.

The vast forests of oaks on the tracts less elevated, are serviceable in building, and their acorns feed thousands of hogs, half wild. Of these we meet with numerous herds, especially in the western parts of the country. Considerable quantities of gall nuts are also obtained from them, that are mostly used in the tanneries.

From the excellent pasture grounds, especially in the marshy parts of the Great Plain, the rearing of cattle has been much attended to, so as to form an article of exportation. M. Schwartner reports, that in 1802, 158,600 horned cattle, 536,340 sheep, rams, goats, &c., and 170,068 lambs and kids, were sent out of the country. The breeding of sheep, among which are many Merinos, has been brought to some perfection. Large quantities of their wool is used in the manufactories, and much also is sent abroad. According to M. Schwartner, the exportation, in 1802, amounted to 14,278,870 ancient pounds of Paris. Wrought into cloth, and different woollen stuffs, it finds its way back into Hungary.

The oxen are generally of a large size, their hair grey and smooth, their horns large and well formed, their head square. When fattened, they are allowed to be fine animals. The horses, however, are small and ill made, and not a little attention is paid to improving the breed. Many of the lords have particular studs on their lands, but the principal one is that of Mezohegyes, in the comitat of Csanad, established by Joseph II., in 1785. It is endowed with a territorial domain of 47,350 acres, (Parisian) and never has less than from 8 to 10,000 horses, including stallions of all descriptions. The superintendent is a colonel, who has under him a major, twelve officers, fifty inferior officers, and two hundred soldiers, with a number of other individuals held in employment. There is another imperial stud at Babolna, in the comitat of Komorn. These establishments have supplied the army and the opulent classes with good and elegant horses, but the race in general is not meliorated. The traveller every where meets with horses of an inferior size, that appear to be stunt or not well broke, and such as he would be timorous of making use of. They support fatigue, however, much better than animals of

superior make and appearance. They are allowed to drink largely of water when heated; a practice contrary to what prevails in other European countries.

As to fruits of every kind, plants, useful in the arts and for sustenance, game, poultry, fresh-water fish, Hungary yields to no country in these respects. The mineral kingdom also teems with immense resources, and the lofty mountains that encircle it on all sides, contain in their bowels riches of various kinds.

The gold and silver mines of Hungary and Transylvania, are the only ones in Europe of fixed and stable importance, and till the discovery of Peru, Mexico, and Brazil, were held of prime consideration. The well-known mines of Schemnitz and Kremnitz, with those of Kapnick, Nagy Banya, Voros Patack, and others, are still worked to great advantage, but it is not easy to appreciate their positive annual value. Their products, in times past, have been immense, but whether it is from negligence or a gradual impoverishment, the gains are greatly reduced. Besides these, wherein the metals are found in masses and veins, gold dust is collected in Transylvania, in pretty large quantities. There are also golden sands gathered in the river of Aranyos, (the word denotes bearing gold) which empties its waters into the Maros. And authors mention the Szamos, the Lapos, in the north of Transylvania, together with the Nera, in the Banat.

But besides these precious metals, Hungary contains copper mines of great importance, and indeed the richest in Europe; those of Oravitza, Moldava, and others, in the Banat; those of Iglo, Dobschau, Smolnitz, Herrengrund, Libethen, &c. in Hungary. Iron mines abound, and the mineral, from its excellent nature and quality, may be compared with that of Sweden or Norway. But the mining works are not sufficiently numerous or considerable, and are far, indeed, from answering the internal consumption, large sums being sent out of the country for this article. Some few mines of quicksilver are to be found, particularly at Szlana, in the comitat of Gomor, but the quantity extracted is small.

Salt is one of the most important mineral productions of Hungary. It abounds very much in the eastern parts of the kingdom; considerable masses of it are formed in the centre of Transylvania, in the comitats of Torda, Klausenburg, &c. An immense depot is also found on the northern frontiers of that province, in the comitat of Marmaros, but its situation is so remote that but little is supplied to the internal consumption. The salt mines of Poland interfere with the exportation northwards, and those of Salzburg and Salz Kammergut, from their

proximity to Austria, must operate against it. The quantity of salt employed in trade annually, may be rated at 1,200,000 quintals, ancient weight of Paris. This mineral substance is every where a royal right; no individual can go to work for it on his own account, and provision can only be made from the large depots established in different places by the government. But the price, a matter of general import, is always fixed in the assembly of the states, where nothing that can contribute to the public welfare escapes attention.

There are several other salt beds or pans in Hungary, of more or less value, where salt is found, in solution, in the waters of the marshes and lakes about the vast plains of the country. In the heat of summer, the salt effloresces on the surface of the soil, and large quantities are gathered of it. Nitre (natron) is also produced in a great number of places, and especially in the eastern parts of the Great Plain. In the comitat of Bihar alone, more than 5000 metrical quintals are collected annually, most of which is employed in the manufacture of soap, particularly in the town of Debretzin. Saltpetre is gathered, in considerable quantities, on the surface of the pasture grounds, in the comitats of Szabolcs, Bihar, &c. In 1802, 3500 metrical quintals were obtained, and the produce would be much more considerable, should the wants of the State require it. The sulphate of soda, and the sulphate of magnesia, are found in the same places, and very large quantities might be procured, were it demanded for internal consumption.

During the last thirty years, attention has been attracted to a particular production, till then altogether unknown, certain alum rocks, perfectly resembling those of Tolfa, in the Roman States. These, under the management of M. Derczeny, of Dercsen, have already yielded excellent produce, and in tolerable abundance, not only sufficient for the manufactures of the country, but for exportation to Austria. The principal places where this valuable mineral appears, are in the mountains of the comitat of Beregh. It is found also at Parad, in the comitat of Heves, but it is there so blended with Pyrites, that the produce is much diminished by it.

Mines of pit coal would form a very desirable acquisition, but the country seems rather destitute in this respect, whatever may be asserted to the contrary by a French author, Marcelle de Serres, in his travels into the empire of Austria, in 1814. The only coal pits accurately ascertained, and where men are at work, are in the comitat of Barany, near Funfkirchen on one side, and at Egregy and Siklos on the other. Those near Funfkirchen are the only pits where the works are followed up with a certain regularity and advantage. The produce is ab-

sorbed in the circumjacent parts, or is conveyed to Pest, where it is chiefly in use with whitesmiths and blacksmiths. All other depots of mineral coaly matter, passing under the name of steinkohle or earth coal, consist of lignite, a coaly substance which contains no bitumen like coal, never swells or puffs when heated, is often difficult to set fire to, and diffuses an unpleasing odour. It is a remnant of wood that has lain buried in the earth, in ancient revolutions of the globe, and the woody texture is occasionally very apparent. Many vestiges of this combustible have been discovered in different parts of Hungary, but there are few places where it has become an object of regular labours. At Wandorf, near Œdenburg, large quantities are produced, chiefly for transport to Vienna. It is, however, highly probable that this mineral combustible might be worked, in a great number of places hitherto unexplored, and with obvious advantage. The mines of Sari Sap, at a little distance from Gran and Pest, are deserving of notice, from their situation in a part of Hungary where wood is getting scarce and dear.

Among other minerals, opal, which for ages has been the peculiar produce of this country, should not be omitted. Of late years, indeed, equatorial America has furnished samples of it for commerce. Opal is particularly found in the groupe of mountains that stretch from Tokai to Eperies, and it is about half a day's journey N. W. of the town of Kaschau, near the village of Cservenitza, that mining works have been carried on for centuries. This substance is discovered in several other places, but it no where else presents that life and vivacity of colours that make it in request with the jeweller, and so highly enhance its value. Ancient authors have recorded, and more recent authors have repeated, that emeralds, beryls, topazes, rubies, hyacinths, and lapis lazuli, have been found in the Carpathian mountains, but neither in my excursions, nor in the collections that I visited, could I trace any vestiges of such. I am of opinion that opal is the only fine or precious stone that Hungary affords.

There are mineral waters, in various parts, that have acquired celebrity in a greater or less degree. Some are hot, others cold; some are purely acid like those of Seltz, others are both acid and ferrugineous, acid and sulphureous. Some are used for bathing in, others for drinking. Those most frequented, and in the highest vogue, are at Bartfeld, in the comitat of Saros, at Lublo, in that of Zips, at Trentsen, Eisenbach, Glasshutte, about Schemnitz, and at Fared, on the borders of the lake Balaton. These are the principal, but there are other waters that require only a more agreeable situation

and greater publicity, to make them popular. The number is more than four hundred, many of which have undergone analytical process by physicians. There is scarcely a comitat that has not several, and it is only in the vast arid or marshy plains that we are not to look for them. Such as are bitter, alkaline, and nitrous, are, occasionally, prescribed by physicians.*

Croatia and Sclavonia have, likewise, a great number of mineral waters, and there are others in the Banat, particularly the ancient baths of Mehadia, commonly called the baths of Hercules. They are found also in Transylvania, and on the frontiers of Hungary. From the abundance of its mineral springs, the names Teplitza, Teplica, Tepla, Tapolcza, signifying hot baths, occur frequently on the maps of Hungary. These waters all issue immediately from calcareous mountains, or from sand and pulverised remnants at their feet. They often contain a great quantity of carbonate of lime, which they deposit all along in their passage, and which, in different places, forms considerable masses of calcareous tuft.

PART I.

CHAPTER I.

JOURNEY FROM PARIS TO VIENNA.

It is not without a secret pleasure, that the philosophical student quits the narrow precincts of towns in quest of tracts wherein a cultivated country is covered with beautiful verdure, or wherein nature, left to itself, appears in all its riches and magnificence. The hope of collecting new facts, in the history of art, or of tracing general laws, by fresh observations, out of those already discovered, gives an impulse to the imagination, so as to excite fresh efforts to redouble his courage, vigour, and perseverance.

* The parts of Hungary that most abound in mineral waters, are the comitats of Zips, Saros, Abauj, Lipto, Arva, Trentsen, Thurotz, Zolyom, Bars, Hont, Nograd, Heves, Œdenburg, Eisenburg, and Szala.

Hungary, a country but little explored by travellers, was an object of curiosity, no less by its physical than its political constitution. I had been several months accumulating, in Paris, all the facts, details, and circumstances relating to Hungary, that I could find in different authors, and the baron Podmaniezkey, envoy from his apostolic majesty, with whom I had become acquainted in Paris, furnished me with ample instructions as to the interior of the country, the manners of the inhabitants, and the ways of travelling in it. He had pointed out all the little difficulties I might meet with, and by letters of special recommendation to his relations and friends, scattered over the country, had suggested the means of my surmounting them.

In general, my journey from Paris through Germany, to Vienna, was rapid, and I had not much leisure to dwell on intermediate objects. As a geologist, I observed large masses of red free-stone, on both banks of the Rhine, which, indeed, extend very far into Germany, and seem to connect with those of the Duchy of Deux Pont. In many parts of the mountains of the Black Forest, are depots of real pit coal. I crossed those mountains by the valley of Kinzig, and visited, by the way, the coal mines of Zunsweyer, which belong to M. Hecht, of Strasbourg; he accompanied me in the same. From Kehl, along the banks of the Rhine to Offenburg, we have uniformly a champaign country; we meet with no hills till a little before we come to Schwarzwald.

The entrance of the valley of Kinzig, which I passed, April 22d, 1818, exhibited a delightful spectacle, from the multitude of fruit-trees loaded with flowers, whose colours, white, tinged with green, contrasted agreeably with the dark green of the pines that covered the tops of the mountains. About a league above Gengenbach, the vegetation was not so agreeable to the view, but the numerous habitations scattered about the gentle declivities, exhibited animating attractions of another kind. I had set out rather late from Zunsweyer, and in order to sleep at Wolfach, as I intended, was obliged to walk a little in the night. Here I was gratified with another amusing prospect; lights appeared in all the dwelling houses, and in the midst of the profound darkness that overspread the heights, the valley seemed illuminated, to a great distance, along its two sides. The further end was enlivened by clouds of smoke and flame, from the forges of Hausach, in the higher part of the valley.

I passed the greater part of next day in viewing the geological collections of M. Selb, and towards night had a guide to Hornberg, where I could resume the post road. In the mid-

dle of the mountains of Tryberg, I beheld with pleasure, the first waters of the Danube at their source; the course of the river I was afterwards to pursue, though at a great distance. At Riedlingen, the hilly country ceases, and all appearances announce our entering into plains.

The vast plains of Bavaria, the soil of which is covered with sand and calcareous fragments, reminded me of the plains of Switzerland, of which they form a continuation. They are only separated by hills of no great height, which mark the division of the waters between the Danube and the Rhine. The Bavarian plains are bordered by the same calcareous matters, as form the two sides of the great valley of Switzerland.

After crossing these plains very rapidly, I proceeded towards Salzburg, intending, by the way, to take a view of the salt mines, which constitute the riches of that country. From Munich to Peiss, along the route of Rosenheim, we travel throughout in a plain that has no undulations, but the country rises gently afterwards, and we pass over a long ridge of hills, in general, richly clothed with vegetation, and presenting aspects extremely diversified. The lake of Chiem, which is not less than ten leagues in circumference, and which we coast along, in passing from Rosenheim to Traunstein, has a fine effect, as surveyed with the hills that surround it.

At Traunstein, the town on the top of a hill pretty lofty, and the immense buildings of salt works at the foot of it, communicating with the town by covered escaliers, (staircases) erected on the slope of the hill, exhibit a total not a little striking, and which, from the heights that border the lake of Chiem, on the east, are truly picturesque. The buildings for the works, and the large toll-house on the Traun, by which wood is conveyed into the timber yards, must necessarily arrest the attention of every traveller who would investigate the nature of great commercial establishments. There is an admirable order in the management; the salt water is brought from Reichenhall, and from Berchtesgaden, ten leagues distant, over two chains of very high mountains, by machines and pumps at regular distances. The water is finally brought into an immense reservoir in the centre of the buildings, for evaporating it by fire. Round the reservoir are eight large coppers and immense warehouses over them. The furnaces are very well constructed, and the combustible materials are husbanded with exact economy.

From the toll-house is a little causeway, and a very agreeable path that leads towards Reichenall. Advancing towards Itzel, the hills get higher, and beyond that village are moun-

tains much higher still. Towards Reichenhall, the country assumes an aspect altogether wild, and the valleys are intersected with rocky precipices perpendicularly steep.

Along the road across the mountains, between Itzel and Reichenhall, we meet with a number of aqueducts that convey the salt water to Traunstein, as also conveyances of fresh water passing in an opposite direction. The machines and pumps are numerous, and are worked with singular precision. A machine does not occupy a space of more than four feet square, but the movements are executed with such punctuality and facility, that you scarcely hear the noise of the piston and suckers of the pump within it, at the distance of a few feet; a person outside can form no idea of the enormous effort that is exerted. The engineer that constructed these works is M. Reichenbach, of Munich, the author of many other ingenious inventions.

The object of my excursion to Berchtesgaden was to visit the salt mine. The director could not accompany me himself, but sent me his secretary as a guide. The entrance to the galleries is at a little distance from the town. I was rather surprised to see the miners bring me a white cassock, like a combing cloth, being accustomed, in all my previous visits to mines, to throw a black cloth over me; a large bougie was next put into my hands, in lieu of a miner's lanthorn. Those who accompanied me had the same costume; thus accoutred, each with a bougie in his hand, and his tunic on his back, we marched in procession into the mines. They led me to all the windings, remarking on every interesting particular, and attending, with infinite complaisance, to all my goings and comings, so that I had every opportunity of studying the nature and variations of this depot that I could desire.

My first views encountered an argilous matter, replete with fissures, filled occasionally with veins or nests of salt. I came next to a mass of salt, very potent and nearly in a pure state; we pursued the track of this down to the deepest part of the labours, it growing purer and purer as we proceeded. This mass is reduced to powder, and detached portions are conveyed into reservoirs, where, by solution, the salt is cleared of its earthy particles. The water is then made to pass to Reichenhall and Traunstein, for evaporation.

The interior of the saline regions of Berchtesgaden, cannot but prove interesting to any that would study the nature and structure of those depots of ancient seas, but I experienced also, the satisfaction of a general traveller, in surveying the most beautiful scenery imaginable.

After passing through a long gallery, we came to one of those

vast cavities from which large quantities of salt had already been extracted. It was a sort of subterraneous gulf, but then it was illuminated by the miners through its whole outline, and even in the sinuosities of its deepest recesses. A glimmering light was every where visible, but not clear enough to distinguish objects; this cast a mysterious air over the whole, so as to form a scene truly magical. The effect was still more imposing, from being blended with terror, when I catched a glimpse of the steep walls of the surrounding precipices, with the ladders and machines for drawing up the salt. The view was tremendous and enchanting, and produced a sensation, of which no description can convey an adequate idea.

Quitting Berchtesgaden, I proceeded next for Hallein. The entrance of the galleries was at Durnberg, where I arrived in a direct course, though I was obliged to pass to Hallein, to get leave of the directors to visit them. Hallein lies in the bottom of a valley, the descent to which is very rapid, by a way cut out of the abrupt declivities of the mountain; to a stranger it has a very picturesque effect. The district no longer forms a part of Bavaria, having been lately ceded to Austria. At Durnberg, the master miner had, by appointment, agreed to accompany me.

This entrance is by an horizontal gallery, lined with solid walls, in all the first advances; afterwards we come to a timber wainscoting, and then appear masses of saliferous argile, solid enough not to require supports or props. In the midst of these argilous walls, we see pretty large portions of pure salt, grey or reddish.

I had not at Hallein the view of an illumination as rich as at Berchtesgaden, but by the light of their little lamps, the eye could trace a number of large lakes, on which are conveyed the saline substances, dug up by the workmen. These lakes were thirty-two in number; I launched into the middle of one of them, on the same *radeau* as had served the emperor Francis. At the time of that monarch's visit; the whole area was lighted up with great magnificence, and to judge from the space which the lamps occupied, the scenery so enlightened, and shining with so great a lustre, must have been very imposing.

One particularity attached to the works of Hallein, is the inclined planes on which we glide to pass from the higher to the lower galleries. The number of these is considerable, and much of the time is spent in the exercise. It may seem strange that we thus glide, pretty rapidly, in an obscure path, over declivities of from eighty to one hundred feet in length, holding a bougie in one hand, and the rope which serves for a guide in

the other. The old miner that conducted me was in a transport of joy to see me move along as nimbly as himself. These miners, in general, expect to receive money from visiters, but when a stranger takes an interest in their labours, converses freely with them, and shuns no difficulties, betrays no fears in following them, they redouble their efforts to satisfy and inform.

After sliding thus a long time, from top to bottom, we arrive at a large gallery, whence there is a way to get out. There we find miners with little wheel-barrows, that bring us up to day light in a quarter of an hour, though to pass on foot would require thirty-five minutes.

This long gallery, partly dug or hollowed in the saliferous mass, and partly in the calcareous, exhibited a phenomenon rather unusual. We should naturally look for moisture as an attendant on the saline substances, and if dryness could be supposed any where, should expect to find it in marbles or calcareous masses, but here the effects are directly the reverse. In the interior parts it is quite dry, where the congeries of salt appears, but the calcareous masses are found to be every where dropping. Two causes may be assigned for this; one, that the argilous mass, which in some measure incloses the salt, is not easy to be penetrated by water, which slides over it till it finds a vent or issue; another, that what little of moisture penetrates, is firmly retained by the argile as well as by the salt, and cannot leak or run out. But a calcareous mass, even the most compact, will easily let water filter through it; and, besides, it is sure to contain a great number of fissures.

While I was at Hallein, I made an excursion to the valley of Salza, surveying the adjoining mountains with the eye of a geologist; on my return, I took the straight road for Vienna. I passed through Salzburg some days after a calamitous event which was every where the subject of conversation. A dreadful conflagration had destroyed eighty-eight houses in the city, together with the superb Chateau Mirabella, which had been ever recommended as an object of curiosity to strangers; also four churches, and the little village of Frosheim. While the inhabitants of this latter were affording their assistance in the city, their own dwellings had become a prey to the flames. The prospect from the mountain of Monchsberg, in the neighbourhood, is magnificent, exhibiting the whole country like a map to the eye of an observer. The landscape was beautiful in itself, but to me was clouded by the smoking ruins that tinged it with a sombrous hue.

After passing through Molk, St. Polten, and Burkersdorf, we enter the plains of Vienna. Here are many pleasant villages that announce our approach to a great city. We leave

the imperial palace of Schonbrunn, which contributed not a little to improve the prospect on our right. The day of my arrival was a holiday, and the road was thronged with caravans going and coming with great rapidity, sometimes containing not less than twenty passengers; they raised terrible clouds of dust, which intercepted the sight at a few paces distance. I reached the barriers at length, and proceeding through the suburbs, which took up half an hour, I entered the city. Upwards of an hour was spent in the search of an apartment with furnished lodgings; the hotels and auberges were full, or otherwise not to my taste, and I at last accepted the recommendation of my postillion, who removed me to Leopoldstadt, one of the suburbs, in an island of the Danube. Here I found suitable accommodations, and regretted that I had not followed his advice sooner.

The city of Vienna, (Wien, Germ. Vindobona, and Vienna, Lat. Bets, Hung.) stands on the right bank of the Danube, in a pleasant situation, lat. 48°, 12′, 40″, N. long. 17°, 32′, 30″, E. of London, and about 413 feet above the level of the sea. Some authors trace its origin to a village of the Windes or Wendes, in the same place, the name of which must have been Windewohn, a dwelling of the Wendes, whence the Romans made Vindobona. Others assert that it took the name of Fabiana, or Faviana, from a Roman governor named Fabius, or from a king of the Rugians named Fava, the word being afterwards corrupted to Viana, and then to Vienna.

At Vienna we must make a distinction between the city and the suburbs. The city occupies but a very small space, and is surrounded with fosses and fortifications. As it includes the ordinary residence of the court, and is the centre of all the public offices, and the seat of commercial transactions, it naturally becomes the most populous. The streets are extremely narrow, the houses very high, and the whole population is exceedingly straitened. Though the number of palaces, hotels, and superb buildings is more considerable, in proportion, than in any other great city, the aspect of the whole seems dark and melancholy, breathing an air of austerity beyond the common standard of German gravity.*

The suburbs are much more extensive, and infinitely more agreeable; the houses are more spacious, less crowded together, the streets wider, and the gardens are in great numbers, diffusing a gay appearance over the whole. The suburbs

* According to an average observation of the barometer, of 17 years, at the mean temperature of 12°, 5′, 8″, for the mercury, and 10° for the air, it will be at 0m, 7478. The hall of the observatory, wherein the barometer is fixed, is at 33″ above the confluence of the Vienne and the Danube.

form a sort of rural district to the city, and there, at the return of fine weather, the great lords, who have erected magnificent palaces with delightful gardens, spend a part of the summer. There is also a considerable number of handsome public buildings, such as the school of surgery, the polytechnic school, with numerous churches, among which is that of St. Charles, considered as the finest in Vienna. There are several very pleasing promenades, in the midst of parterres, wherein the vegetation is rich and abundant, the city affording nothing of the kind.

But notwithstanding these advantages, there are also inconveniences, which no doubt will be removed hereafter, but at present are disagreeable. In the suburbs, the principal streets only are paved, and the rest, in winter or rainy weather, are covered with mud. The boulevard, which we pass over to enter into the city, is also filled with it; add to which, that in summer, in the dry weather, we are scorched by the sun, and stifled with dust.

The suburbs have all been raised since 1684; those prior to that period were destroyed, in 1683, at the approach of the Turkish army, during the revolt of count Tekeley, in Hungary.

They have not always made a part of the city; several formed distinct villages, till Joseph II. incorporated them with Vienna. They have been since increasing rapidly, and an extensive line drawn round the city would take in about 6000 houses and 180,000 souls; the city alone may have 1400 houses, and 46,000 inhabitants. The suburbs are thirty-three in number; the principal and most beautiful are Leopoldstadt, Wachringergasse, Alvergasse, Josephstadt, Maria Hulf, Wieden, and Landstrasse. The Prater, the finest promenade in Vienna, and perhaps in Europe, is in Leopaldstadt. It is a sort of magnificent forest at the gates of the city, in a large island of the Danube; it is more than a league in length, and half a league wide, and contains oaks, beech, lime, and chesnut trees, all of a superior description. Superb avenues, with flowery meadows on each side, have been cut through it, interrupting the monotony which the thickness of the foliage would occasion, and giving animation to the scene. A multitude of booths and little *auberges* are scattered in various directions, forming detached hamlets, exhibiting spectacles, games, horsemanship, &c. The Prater is, in summer, the rendezvous of the whole town, and when enlivened by a crowd of splendid equipages, by the gay assemblage of the population, diversified with Turks, Greeks, Armenians, Jews, &c. all in their national costume, the traveller of sensibility will feel himself highly gratified.

If Vienna, in its interior, presents few attractions, this must be attributed to the height of the houses and the narrowness of the streets, for there are few cities, and especially fortified cities, that contain, in proportion, so great a number of palaces, hotels, and genteel buildings. These are mostly of pretty recent construction; few, or none, however, display any thing remarkable in their architecture. The imperial palace is an immense structure, but having been enlarged at different periods, there is little of symmetry in the exterior, and its general appearance falls below the idea that one would form for the mansion of a great Sovereign. Certain parts of it look beautiful, and others have an air of imposing grandeur, but here, as throughout Vienna, every thing is crowded; the palace is concealed on one side, by the houses of the town, and by the rampart on the other; nor is there any other entrance or egress than by arcades that are necessarily public, and of course generally encumbered with carriages and foot passengers. Among the churches, that of St. Stephen is well deserving of attention; its architecture is a beautiful Gothic. The spire, which is not so high as that of Strasburg, but bolder and higher than any in Paris, is 414 feet above the level of the pavement.

Within the city, the number of places or public squares is pretty considerable, but they are, for the most part, irregular, and thronged with little stalls of hucksters. In their centre appear fountains and monuments, but often overcharged with ornaments, and generally in a bad taste. The place Joseph may be considered as one of the courts of the Chateau; it has an air of dignity which would be greatly enhanced were it more spacious. The statue of Joseph II., which occupies the centre, is frigid, and not without its imperfections; it adds, however, to the embellishments of the place.

The houses of Vienna are mostly of bricks or timber; buildings of any consequence are of stone. Some are of a particular free-stone, greyish or yellowish, of which I observed a series of mountains, previous to my reaching Vienna. Others are of calcareous, coquiliferous stones, from the borders of the lake of Neusiedel, in Hungary, and resembling those most in use at Paris. The streets are pretty well paved; on each side are causeways for foot passengers, consisting of large flags of grey granite, from Saiblingstein, on the banks of the Danube. The middle of the street is of grey-coloured free-stone, partly brought from Burkersdorf, where I had occasion to notice some quarries, and partly from other points of the same mountains.

In treating of Vienna, I must not omit mentioning their mode of paving under coach gateways. In lieu of stones, they

use cubes of wood, placed one beside another as in ordinary pavements, so that the edges of the wood lie vertical. In this way, a carriage passing under the gate makes no shaking or harsh noise, as when the paving consists of stones. Fir is the timber employed, and this sort of pavements will last for a long time.

The number of hotels with furnished lodgings, is not considerable at Vienna, which seems rather unaccountable, considering the vast influx of strangers. In the very heart of the city the accommodations are not the most inviting, and a stranger feels little inclination to stop there. But in the auberges of the suburbs it is otherwise, and the terms reasonable; in this respect, Leopoldstadt may be recommended for a traveller who means to make only a short stay. The air is salubrious, and the Prater is nigh at hand, where, every day the promenade is respectable, and on Sundays it is thronged with all the various classes of society. In most of the auberges you may have your meals, either in your own apartment or at a common table. But these meals are regularly from twelve to two, and from eight to ten; nothing can be had in the intervals, unless previously ordered. The auberges where liquor only is to be had, are distinguished by a bundle of shavings, moulded into the form of a bell; those, where eating is provided, are noted by a bunch of fir. Some of the *traiteurs* are in very great vogue, and there are many coffee-houses; some are pretty well furnished, and here all the voluminous gazettes of the German States may be read. One particular, incommoding to a stranger, is, that the hackney coaches, which are pretty numerous and ready at hand, either for town or country, are subject to no fixed prices, so that you must agree with them beforehand, or you may expect disagreeable altercations.

Such is the general outline that I sketched of Vienna, during the short time of my residence, going through and returning. As to the various institutions, such as the university, the academy of surgery, the gymnasia, the polytechnic school, the academy of commerce, that of the fine arts, the normal school, the academy of oriental languages, the general seminary, the institution for deaf and dumb, the hospitals, the establishments of a benevolent description, of which there are many that do great honour to the inhabitants, and some to the care of government, I had no time to examine or treat of in detail, inspecting some very rapidly, and others not at all. In general, I may remark, that, as to the primary bases of instruction, it appears less forward here than in other parts of Germany. The polytechnic school has no resemblance to ours; it is limited to providing a certain number of young persons with

instruction merely elementary in the arts and commerce, so far as to construct plans, and in the practical parts of stone cutting; these extend also to chemistry, physics, natural history, as connected with the arts and commerce, also to history, geography, and the languages. The plan of this establishment is more assimilated to that of our schools of arts and trades, but is more comprehensive.

Vienna, in its aggregate, contains very numerous collections of every description. The imperial library adjoining the Chateau, passes for the most considerable in Europe; report assigns to it more than 300,000 volumes, (the royal library in Paris has more than 500,000) also a great number of MSS., and of samples in the art of printing, from 1435 to 1500. The apartments wherein these valuable assemblages are deposited, are very suberb, and if there is any thing objectionable, it is the superfluity of gildings, marbles, paintings, and other articles of luxury. The cabinet of antiques and medals is also in the imperial palace, together with the museum of natural history, the present director general of which is M. Schreibers. This establishment is very rich in minerals, many from Hungary, also in shells, marine polypi, &c.

The gallery of paintings at the Belvidere, on the Rennweg, has an immense collection of works of all the different schools; it was first formed by Joseph II., and has been gradually increasing since. There are very capital paintings in the different churches; these have also their mausolea, the most remarkable of which is that erected by duke Albert de Saxe Teschen, in 1805, to the memory of his wife, the archduchess Maria Christina. This monument is in the church of the Augustins, adjoining the palace; it was executed by Canova; the whole has an air of dejection and grief so natural, that the sympathising spectator cannot but follow the figures, slowly moving, as it were, to the tomb.

At a little distance from the Belvidere, in the Rennweg, is the botanic garden, belonging to the university. It is under the management of the baron Jacquin, son of the botanist to whom we are indebted for the Flora of Schonbrunn. The number of rare plants is not very great, but the establishment is very well adapted for the instruction of the students.

Besides the collections of a public character, there are a great number that belong to individuals. Indeed, there are few cities wherein a taste for the arts is more generally diffused among the opulent classes. There are collections of paintings, of statues, of antiquities, but a great deficiency of those in natural history. M. Vondernull has a collection of mineralogy, of which M. Mohs has published a descriptive

catalogue; another also of precious stones, cut and polished. This last has been since sold to count Archinto.

The environs of Vienna are, in general, agreeable. We find scattered around, elegant villas, chateaux, palaces, surrounded with the richest vegetation, in situations the most picturesque, and abounding with natural curiosities. For further descriptions of Vienna and its environs, I must refer the reader to the work of M. Marcel de Serres, on the Austrian monarchy, who has handled this subject with very considerable detail, and to other authors.

Some notice may be taken, however, of the imperial palace of Schonbrusur, the park of which especially merits the attention of naturalists, from the immense number of plants distributed throughout its numerous inclosures. This is partly owing to the munificence and special care of the reigning emperor, who is not a little attached to the study of nature. Occasionally the traveller will see foreign birds fluttering about the plants of their natal soil, though generally confined in cages. The menagerie is not very rich in animals, though superior to that at Paris. At Schonbrunn are also the Alpine collections of the Archduke John. The archdukes, the archduchesses, and the emperor himself, are frequently occupied in the investigation of the objects of natural history.

The imperial chateau of Lachsenburg, excites an interest of another kind, in the variety of its objects of fancy. Here are temples and pavilions of curious foreign architecture, also buildings and their furniture, throughout, in the rustic style, with village fishing and farming. One building, called the House of Caprice, is singular in its architecture, and in its odd and grotesque contents, some of which are so contrived as to be rather mischievous. But the most striking object, at Lachsenburg, is the little Gothic castle, built by the present emperor, on the model of the castle of Ambras, in the Tyrol, which is as old as the fifteenth century. It forms a truly curious picture of a castle of the middle ages, giving a complete idea of chivalresque manners, monuments, furniture, &c.

The chateau of Dornbach has a very delightful park, and that of Schœnau, two posts from Vienna, contains the famous temple of night, the descriptions of which resemble those of the palaces of the fairies. About Vienna are not a few neat villages, with elegant houses and chateaux, more or less remarkable, where a stranger may entertain himself during the fair season, amidst a profusion of materials, accumulated by art and caprice.

In one of my excursions as a mineralogist, I came to Sifring to survey two quarries, from which vast quantities of stones

had been taken, so as to lay open the composition of the interior soil. I remarked there, in prodigious quantities, the remains of plants and vegetables, that had changed their nature and become a carbonaceous substance.

One object of my staying a little longer at and about Vienna, was to make preparations for my journey into Hungary. I wished to procure such maps and descriptive notices as were not to be had in Paris. I expected to find in the learned bodies and their collections, new documents respecting the country I intended to visit. But herein I was greatly disappointed; at Vienna the information was as defective as at Paris, and, besides, strong prejudices existed against the people and country. Many were for prepossessing me with groundless apprehensions for my personal safety, but I had formed my resolution, and could account, from history, for a kind of national antipathy in the Austrians, the result of so many ages of incessant wars. To this I also attribute certain incivilities, on the part of the police, when I made known my intentions of proceeding into Hungary. Recent circumstances might have inspired some distrust of the French name, but all difficulties vanished on addressing myself to the higher officers, and I met with nothing but complaisance and facilities. M. le Comte de Caraman, French ambassador at Vienna, demanded himself the passports I should require, at the Hungarian chancelry, and procured also, from the chamber of mines, the necessary orders for my entering and inspecting the mines of the state.

CHAPTER II.

JOURNEY FROM VIENNA.

I quitted Vienna, May 26, 1818, but difficulties lay in my way in passing through the barriers. A clerk stopped the carriage, and asked a number of questions, and when, in reply, I assured him that I had come from Paris, and meant to travel through Hungary, he repeatedly exclaimed, striking his head in astonishment, "Von Paris, nach Ungarn! From Paris to Hungary!" To the Austrians, Hungary is tantamount to Siberia. The clerk, after examining my ample papers, added, "How learned this gentleman must be!" and after asking if Dominus Magnificus, in the passport, was my Christian name, to which I gravely answered in the affirmative, I was allowed to proceed on my journey.

For a long time, we pass over a plain in pretty good cultivation; the islands of the Danube skirt the horizon on the north, and with the forests that cover them, serve to amuse the traveller in his passage. In front are the Laita Mountains, stretching from N. W. to S. E., and in some measure connecting the Carpathian mountains with those of Styria. In the neighbourhood of Peternel, in the middle of the fields, we perceive the remains of a triumphal arch, attributed to the Romans. I arrived at Presburg towards night.

The city of Presburg (Posonium Lat. Posony, Hung.) is one of the most considerable of Hungary. Though at the frontier extremity of the kingdom, it was long the seat of government, while the Turks were in possession of Buda, or in a condition to threaten its security. It is generally considered as having been founded prior to the time of the Romans, from whom, however, it derived the name of Pisonium, or Posonium. Presburg is pleasantly situated on the left bank of the Danube, which is here about 270 feet in width. It is tolerably well built; there are many good houses, and some large buildings, called palaces, among which the palace Batyani is undoubtedly the most magnificent, though unfortunately pent up among other buildings. The churches are in a plain style, but appear very neat in the interior. The streets are mostly narrow, and often turning; they are paved, but not well, in the town, and in the suburbs are only causeways on one side next the houses; the middle is a channel, very muddy in rainy weather, and in dry seasons nauseating and stifling from the dust.

The castle royal, destroyed, in part, by a conflagration, stands on a gentle eminence, on a bank of the Danube, and is commonly considered as the first promontory of the great chain of the Carpathians. Its height above the Danube is about 180 feet. The castle is large and well built, but has nothing remarkable in its architecture. There is a fine view from the mount on which the castle stands, but misty weather prevented me from entirely commanding it.

At Vienna, I had heard so much of the harsh treatment strangers experience in Hungary, that I was not without apprehensions, when one of the town servants brought me an order to appear before the police. These were dissipated when I presented myself before a magistrate, who, with the greatest civility, assured me that my reception, as a stranger, would be every where agreeable. In fact, I witnessed the noblest hospitality on the part of the gentlemen, and an interesting affability in all classes of the people.

I quitted Presburg by the road of Posing, having on the right a very large plain, well cultivated, and the primitive

mountains on the left. Near Posing is a vein of quartz, producing gold; at Malaszka is one of antimony, and near it another of gold and silver; all of these have been worked. Those of silver or gold are similar to what is yielded by the primitive earths at Botza, in the comitat of Lipté, but cannot be compared with those of the country of Schemnitz, which are in a soil very different, marked with particular characters, only to be found, elsewhere, in the mines of the New World.

The lower parts of these mountains, from Presburg to beyond Posing, are covered with vineyards that produce very good wine, known by the name of St. George; together with the wines of Buda and Œdenburg, it passes at Vienna for one of the best of ordinary wines.

Having reached Moderna, I quitted the road that leads to Moravia, for that of Tyrnau. Travelling in this direction was unpleasant; it was over a flat not very fertile, extending on the west and south as far as the horizon, and bounded on the north by very distant mountains.

Tyrnau is a small but pretty handsome town. I was struck with the air of neatness that pervaded all the houses, which had been lately white-washed, and the window-blinds painted green. Though not really better than cottages, their appearance was sprightly and gay. There are several churches; at some distance nothing appears but steeples, which gives an air to the place of being much more populous, and hence, it has been called Little Rome. The streets are wide and kept clean; there is a good choice of inns, but I had been recommended to the best, the Black Eagle, in the Place, or Market, fronting a large street, at the end of which we discover some part of the buildings of the university.

Leaving Tyrnau, I had to cross plains where the road serpentines, so as frequently to appear diverting us from the object intended. Perhaps my guide had lost the road, but this he would not acknowledge; I was six hours, however, in reaching Freystadt, (Galgotz, Hung.) a distance of only four leagues. Here, after crossing the Vag, we find along the water side a very agreeable promenade, on the declivity of a hill which has a castle on its summit. The situation was delightful, and formed a contrast with the dreary plain I had just been traversing.

At Freystadt I noticed a considerable magazine of millstones, conveyed from the quarries of Konigsberg. Leaving Freystadt, I had to travel up and down hill, with no shelter from the sun, and afterwards through a wood, where the shade was doubly refreshing. I then reached a point of view where the city of Nyitra lay in a sort of basin below, It was pleasant

to see an end of this day's toil, for I had been partly on foot and was fatigued, yet had my doubts as to readily procuring lodgings in one of the great cities of Hungary.

In less than half an hour I had reached Nyitra. I came first to the suburb of the Jews, called the Judenstadt, but from old prejudices, was averse to stopping in a Jewish *auberge*, and passed on to look out for one in the town. I entered one of very decent appearance, the Golden Stag, but the master, after eyeing me from head to foot, assumed a theatrical air, exclaiming, that he neither could nor would provide me with a chamber. I then, in my turn, with a lofty demeanour, planted myself in the house, sending my servant out for the judge. In the interval, by shewing these people my port folio, and other parts of my paraphernalia, they found me a chamber, and brought into it a dry mattrass, and an enormous pillow that was to serve for a covering; no bed-clothes. When I asked for some, and a pullet for my supper, the house became a scene of uproar, which was only terminated by the arrival of the judge. This gentleman, on inspecting the large seals of my passport, and my relays of assignation, *(forchepan)* took his hat off, with many tokens of respect, and seriously reprimanding my landlord, departed. The latter then was all civility and complaisance.

In general, throughout Hungary, a person that arrives on foot is but little considered. The reason is, that the lords, the public functionaries, and all that are provided with relays of assignation, have a right, on payment of a small sum, to be conducted by the peasants, who are obliged to furnish a carriage and horses. Hence, it so happens, that one who can afford to eat a pullet is rarely a foot traveller. The peasants are accustomed to it, being inured to a hard life. In entering an auberge, they do not even ask for a chamber or a stable to sleep in; if they do not find some corner on the ground floor, they throw themselves down in the middle of the court, wrapped up in their bunda. This is a large pelisse made of sheep skin, and their only clothing in summer and winter. In cold weather, they turn the woollen side inward, and the contrary in warm weather. They even prefer this covering to any other. A person travelling in a carriage is every where well received and entertained. This is the case with such as travel in hay-carts, which is very common in Hungary, even with the great lords.

The reception I had met with, insensibly gave me a dislike to the town; it has, however, some fine houses, and it lies in a very pleasant situation on the side of a hill.

My next object was to make an excursion to the mountains

of Gimes. When I came to the village, it was only with a Jew that I could have a small chamber, and that not in the neatest order. Observing a capital house at some little distance, I recollected the advice given me by the magistrate of Presburg, and was not long in introducing myself. It was the mansion of the count de Forgacs, lord of the district, who received me in the kindest manner, inviting me to stay with him while I was exploring the parts adjacent.

Hungary is a country that its neighbours are ever misrepresenting, and we have, in France, notions not much in its favour. The lords, however, are in general very well informed, speaking several languages, and the French habitually, which, indeed, is usually the language of good society. But their distinguishing characteristic is a noble politeness; a stranger is uncommonly well received, not only by those to whom he is recommended, but by those to whom he is entirely unknown; a dignified simplicity will add grace to the reception. To be lodged in an ill-conditioned auberge, belonging to one of his farmers, would be a sort of reflection on the lord, or the stranger would be deemed as holding himself inferior to polite society.

The peasantry are very well behaved, and I had never the slightest reason to complain of any. When obliged to have some with me, in my little expeditions, I always found them remarkably attentive, and ever eager to accompany me somewhat further. This proved to be the case universally, and I am unable to account for the boisterous declamation of travellers, respecting the manners of the inhabitants. Our reception depends much on the mode of presenting ourselves; if we will not conform to the usages of the people, if we treat the peasant with hauteur, or ridicule his appearance and behaviour, no wonder that disagreeable consequences arise, and more I should look for in Hungary than elsewhere. Some of their customs are uncommonly singular, but I submitted, unreservedly, to them; and this little complaisance, which costs nothing, contributed not a little to render my stay in the country agreeable.

In fact, what could seem more odd to a Frenchman than to see the dessert served up as soon as he is sat down to table? then comes chocolate, then an omelette cut into small bits, and these arranged symmetrically on a plate of prunes, then a piece of veal on baked pears, a plate of maize baked in a dish, with water, &c. A bottle of liquor and a glass are then brought, at which every one helps himself in his turn. After the repast the men fall to smoking, the ladies being the first to offer a pipe; and this occurs every where. The Hunga-

rians are so truly polite when we adopt their customs, that we cannot with a good grace refuse to be accommodating.

We should still more make it a point to conform to the manners of the peasant, who seldom or never reasons, and judges of others by himself. One of his greatest civilities is to offer you drink out of his bottle; he drinks first, and again after you; if you comply, you are instantly in his good graces, but otherwise if you slight his kindness. It is well, however, not to make one's self too familiar, avoiding, at the same time, all appearance of hauteur.

When I arrived at an old castle, the resident of the lord's game-keeper, a young girl came to open the gate, and instantly took my hand to kiss it. I was a little startled at this gallantry, witnessing it, for the first time, at the gate of an old forsaken castle, in the midst of a forest. My surprise disconcerted the girl, and being desirous to speak with her, I found she only understood the Sclavonian. She again took my hand to kiss, and I no longer declined it. I have since been frequently a witness to this usage, which is very common. A peasant never appears before a well-dressed man without practising a similar ceremony. Children and young persons learn and practise it not only with their relations, but with company of every description. Gentlemen kiss the hands of the ladies; and a lady paying a visit to another, superior to herself in age or quality, tenders this mark of respect; if the latter would give an instance of politeness in return, she conceals her hands and makes a prompt offer of her face.

From the top of the castle there is a very fine view of all the surrounding mountains, which are every where covered with trees. In one excursion, I found a handsome wood, wherein the count de Forgacs has cut a number of little avenues and paths that serpentine in every direction. In an adjacent warren is a variety of game, with fish ponds; these, with the situation entirely rural, render it a very pleasing promenade.

I could not stay long at Gimes, notwithstanding the pressing instances of the count de Fergacs; I was impatient to visit certain problematical rocks, that formed a principal object of my journey. I left my new friends, much pleased with their affability; the count supplied me with his carriage, and I took the road for Konigsberg.

I might observe here, that the most elevated point of the country is the mountain of the castle of Schlossberg, called here the Mountain Gimes. Its height is about 1536 feet above the level of the sea. Annexed are some barometrical observations, June 1, 1818.

Schlossberg, at noon	height of the barometer,	719 mill.
	temperature,	19 gr.
	fair weather.	
The village, at 10 o'clock	height of the barometer,	738 mill.
	temperature,	19 gr.
	fair weather.	
Observatory at Buda, at 2 o'clock	height of the barometer,	742 mill.
	temperature of the air,	19 gr. 3
	do. of the mercury,	15 gr.
	flying clouds.	

The new observatory of Buda was the point of comparison which I assumed for all the barometrical observations I made in Hungary.

At the village of Aranios Marot, I found an auriferous lead mine, and along the road I was now travelling, met with large blocks of a porphyritic stone, to which M. Haüy has given the name of trachyte. These must have descended, washed away by some great flood, from the hills to the north-east. At the village of Szent Benedek, (St. Benedict) which is adjoining to those hills, I observed blocks of trachytes exactly similar to those in the walls of the castle of Gimes. On the summit of one is a monastery, which has been ceded to the chapter of Gran, and overlooks a pretty good landscape, though the features of the country are harsh and severe. At the foot of it runs the river of Gran. The whole district is a champaign, covered with sand and vegetable earth, and the few neighbouring hills are very low and round. Little is to be seen all the way to Konigsberg.

This little town, called by the Hungarians Uj Banya,* would scarcely deserve the name of a village in France. The only object worth noticing, is the town-house, built, in 1382, by queen Mary, for her own residence; in front of it is an inn, where a traveller may find tolerable accommodations. The houses of this royal free city are scattered up and down, without order or neatness, and the environs have a wild appearance, except an opening that commands a valley, which here produces an agreeable feeling from the effect of contrast. Lofty mountains, crowned with thick forests, the little scattered dwellings of the miners interspersed among the trees, the roofs of the engines and buildings for the machinery, a church on a little eminence, these look well at a little distance, but on approaching them, from the heaps of rubbish thrown out by the miners, the illusion vanishes.

* The name of Banya often occurs in Hungary; it signifies a mine. Uj is an adjective, meaning new; Uj Banya, the new mine.

At and about Konigsberg are rocks that are worked into for mill-stones; they bear the name of Muhlstein. They are found also at Hlinik, which is about four leagues to the N. N. W. on the banks of the Gran. The trade in these mill-stones is very considerable throughout all the S. W. parts of Hungary.

I visited the mines of Konigsberg, which are situated above the town, and found the metalliferous parts every where in the midst of earthy rocks. The minerals consist chiefly of auriferous sulphurated silver, found in masses or in small veins, and portions scattered over a soft substance easily diluted in water. Native gold also is found in fine parcels, mixed with earthy matter, and it is sometimes found in veins of quartz. Sulphurated antimoniated silver, fragile sulphurated silver, and sulphurated antimony, are also occasionally found. There is a very great quantity of sulphurated iron, in little crystals, spread through all parts of the rock.

The mines of Konigsberg are extremely ancient, and, in earlier periods, were abundantly productive. The payment of the miners consisted then of the gold-dust that would attach to their clothing. This prosperity gave such importance to the place, that queen Mary I., in 1382, built a mint here, and a palace for her own residence. A considerable diminution has taken place, and in lieu of 300 workmen, at present there are only 80.

The labours of the workmen are not conducted according to the usual methods, but enormous transversal galleries have been formed, constantly pursuing the earthy rocks to indefinite lengths, and only terminating with the mineral, in deposits more or less considerable. This shews that the labours exerted in the masses met with here and there, have furnished, at times, an immense produce, at others, hardly covering the expenses. The parts abandoned, whatever the miners advance to the contrary, seem completely exhausted, and their operations are at random, without any fixed data as to the metalliferous depots.

I traversed the mountains on both the right and left side of the valley of Gran. In the latter, one general character presented itself, a number of cavities, which appeared like the remains of so many craters. They are covered with a thick vegetation, almost impassable, and contain no vestiges of scorified matter, to denote the quondam existence of an igni-vomous aperture. There are, however, near the village of Magospan, in the declivities and lower parts of the earthy sides, basaltes, evidently significative of volcanos, posterior to the formation of the trachytic rocks. These basaltes are in mass, and but seldom divided into distinct prisms; their

colour is commonly a dark grey. In some points, remarkably cellulous, the colour is a pretty deep black. On the surface of the soil are found considerable quantities of black scoriæ, twisted, and as evidently produced by the action of fire, as those of Nugere, Puy de la Vache, &c. in Auvergne, or as those of volcanos in full activity.

These, and other observations made in the vicinity of Konigsberg, could not lead to any decisive conclusion as to the origin of the rocks, whether igneous or neptunian. It is evident that the trachytic earth is mixed with substances really scoriaceous, and that the basalte contains scoriæ, turbinated or twisted, which would denote a probability in favour of an igneous origin. The existence of metallic depots, in the heart of substances produced by fire, is not peculiar to Konigsberg; it is the case in the gold mines of Telkevanya, in Upper Hungary, in those of Viltalpand, in Mexico, and perhaps in the mines that Strabo makes mention of in the Isle of Yschia, on the coast of Naples. But this will not apply to the mines of Schemnitz, and a number of other places, where every thing, on the contrary, points to a neptunian or aqueous origin.

CHAPTER III.

COUNTRY OF SCHEMNITZ, &c.

On quitting Konigsberg, we pass along the right bank of the Gran, by mountains of molar porphyry, that stretch to beyond Scharnowitz. After crossing the river at the village of Rudno, we meet with trachyte rocks, extending to beyond the village of Unter Hamer, and to the mine works that lie before the village of Hodritz, where are various other rocks of different kinds.

The village of Hodritz, overlooked by wooded mountains, or the dark foliage of pines, contrasts agreeably with the bright green of other trees, and has a cheerful aspect. On a height, a little before it, is a spot covered with little habitations, neatly white-washed, and which have a fine effect, from the verdant scenery with which they are surrounded.

After this coasting along the left bank of the river, we meet here and there with detached houses. We then begin to ascend by a noble road, cut out regularly on the right declivity of the valley. When arrived at the highest point of the road, we discern on the N. W., the valley of Eisenbach, and on the east, after turning the Paradeisberg, or Mountain of Paradise,

which, till then, obstructed the view, we overlook another open country, and approach the basin wherein we survey Schemnitz and Dulln. This country has acquired considerable celebrity, from the immense mineral riches that it contains. The traveller's attention is arrested, when he reflects that it has been the nurse of geologists, Jacquin, Delin, De Born, Scopoli, &c. The engines for extraction seem numberless, and may be every where distinguished by their conical roofs, exhibiting all the appearances of bustle and activity. All around are immense *haldes*, heaps of excavated matter now re-agglutinated from decomposition, and attesting the antique origin of the mines, by the prodigious mass of their materials drawn from the bowels of the earth.

The road descends rapidly on Schemnitz, and I arrived there early, to trace a rapid sketch of the environs, and form a general notion of the country. The little town of Schemnitz (Selmecz, Germ. Banya, Hung.) is situated at the northern extremity of the comitat of Hont, on the southern border of a little basin, encircled on all sides by groups of mountains. In the middle of the basin rises the mountain Calvarienberg, with a conical form, and completely isolated. A chapel on the summit, and certain stations constructed on the southern declivity, give it, from the plain, an inviting air. Its summit is about 2239 feet above the level of the sea, and 101 above Schemnitz. The view from it is very much narrowed by the surrounding mountains, but their sinuous elevations, with the forests that cover them, form a delicious panorama. The town of Schemnitz, which lies southerly, appears from it like an amphitheatre of houses, which, blended with verdure, in carpets of grass that partially cover the country, exhibits a landscape that never fails to be attractive.

Here I may remark, that the Germans have, pretty generally, given name to various places wherein they have settled; sometimes it is a corruption of the native name, and sometimes a word that has no relation to it. Most places have various names, and one or other is used as the discourse is directed to an Hungarian, a Sclavonian, or a German. There are even Latin names pretty common, modelled on one or other of these languages.

Schemnitz, according to report, was in being under the reign of St. Stephen, the first king of Hungary, about the year 1000 of the Christian æra. It was then partly built on a rocky point that lies to the N. W. near the town, and which was overthrown by an earthquake. There were gold mines then working at Dulln, when those of Schemnitz were first discovered. Tradition relates, that this was effected by a hog,

which, grubbing up the earth, made bare the indications of a famous treasure of minerals, near the place where now stands the principal inn of the town.

The position is somewhat disagreeable, from its lying open to the north winds, and being excluded from the south by mountains; the weather is cold in all seasons. There is nothing in the interior to invite attention, no pleasant promenade to recreate the inhabitants during or after their labours. There is, universally, an arid appearance on which ever side we turn; mountains of rubbish covered with ochre, and exhaling a sulphureous scent. All around we must scale more elevated situations to come at a temperature more refreshing, trees, green grass, and the sweets of vegetation.

The valleys which descend to the S. W. are agreeable, though in their higher parts less pleasing; thick forests of pines cover the declivities as well as the tops of the mountains, and appear as if intended to conceal the depths of the adjacent precipices. The lower parts are more agreeable, the declivities more gentle, and various parts are covered with oaks, birch, and beach trees, whose lighter foliage contrasts with the darker tints of other trees.

The valleys of Eisenbach and Glasshutte contain baths of great celebrity, and much frequented in the fair season; they then become points of assemblage very entertaining. But we do not find in these establishments all the conveniences that might be wished. Throughout Hungary the traveller takes with him his bed, linen, and other articles of prime necessity. Woe to one that arrives without this immense luggage, for a wooden bed, often too short by a foot, straw, two or three bad chairs, and a coffer or chest of fir, constitute the whole furniture of a chamber, though always very neatly white-washed; and the baths here can offer him no better.

The school of mines established at Schemnitz, by the empress Maria Theresa, acquired, at its outset, a well-merited reputation. The encouragements given to the students, the talents of the professors, the curious improvements in the processes of extraction, &c. attracted from all parts a numerous concourse of pupils, as also of eminent scientific characters. At present, few traces remain of that transient splendour. They are now more intent on realising products than propagating useful knowledge. The chamber of mines is chiefly or wholly occupied in financial arrangements; all that regards science and the practical improvements of art, are subordinate objects hardly deserving notice. Here are no professors devoted to the study of different branches of mining as a science; some officers go through some courses, but it is like works of super-

erogation, sacrificing time snatched from other business. Here is no difference between the engineer and the miner; the same lessons serve for both, and are unsuitable either for one or the other. For a laboratory, there is a hall without any of the necessary implements, and for a collection, a confused heap of samples, ill selected, confusedly thrown together, and covered with dust. Such is the state of this once celebrated school. Among the officers of the mines are men of merit, but their efforts are paralysed by the lucrative spirit that pervades the superior management. The quantum of the products is, in some measure, prescribed beforehand, and the chamber refuses to advance the disbursements requisite even for improvements that would augment the profits.

A country as important as that of Schemnitz, from its mineral riches, which for ages has been the object of subterraneous labours the most extensive, might readily be considered as well known with respect to its mineral constitution. But the authors that treat of Hungary, notice Schemnitz but slightly, though its district forms a type of comparison for all others of the same kind.

As to the nature and position of the soil or earth, Becker and others consider the whole mineral mass as entirely formed by water; others consider it as the production of volcanic depots. There is a great contrariety among authors; M. de Buch, however, has demonstrated, that there have certainly been volcanic depots in Hungary. Admitting this, my own opinion is, that the mines of Schemnitz are not of igneous origin.

CHAPTER IV.

DIFFERENT EXCURSIONS IN THE COUNTRY OF SCHEMNITZ.

Within this range, there are several mining works of greater or less celebrity, as in the flanks of the mountain of Szalas, in the valley of Eisenbach, in the lower part of the valley of Hodritz, to within a little distance of Unter Hamer, some hours journey from Schemnitz. To the south also, the mountains that rise behind Schemnitz give vestiges of numberless excavations and subterraneous labours. But the mining country is surrounded with a number of sterile tracts.

Those mine works, in general, within the country of Schemnitz, appear included within a space nearly quadrangular. The valley of Eisenbach seems to be the most interesting in

the whole district, from the numerous veins, argentiferous, and auriferous, that constitute its riches. The village of that name lies at the entrance of a vast basin, about which the mountains are not so lofty, their summits are more depressed, their declivities less rapid, and covered with a refreshing vegetation lighter than the dark tints of the firs; the temperature also is milder, and nature presents, as it were, a new face. The bathing house, the only place where a stranger can conveniently lodge, is at a little further distance. The house is a very good one, and most agreeably situated; in front is a little square, and in its centre a little Chinese parasol, in a bad taste, and somewhat degraded from the gypsies, in the season of the waters, playing airs there, to me very disagreeable, for whole days together. The house, for an *hotellerie* of Hungary, appears genteel in its interior; it is exclusively appropriated to the bathing visiters, but the season was just commencing, and they were willing to take me in, on condition of not stopping longer than three days. I was conducted into a vast corridor, with a number of chambers on each side, on each of which the price was fixed. Some, towards the back part of the house, were taxed at a florin per day; others, more to the front and in a better light, at a florin and a half. With difficulty I procured one on this side, under a promise of removing, should it be asked for by any one taking it for the season. These chambers are not elegant, but remarkably neat, and, being all newly white-washed, had a gay appearance. A *couchette*, at least half a foot too short, and some stuffed chairs, not in the best condition, made up the whole furniture. Going out soon after on a visit to the mountains, the servant wished me to leave the key, that they might make my bed, but when I returned in the evening, I found my room just as I had left it. They imagined that my bed and wardrobe would arrive after me, and they had made preparations for receiving them. There was no mattress in the house, and I was glad to content myself with a bottle of straw. The only covering I could get was a very dirty coverlid; the borders I wrapped as carefully as I could with the napkin that had served me for supper. The *bourgeois* (my landlord) did not approve of this, but it was my only resource, and would be so to any other visiter that should arrive on foot, and with no other luggage than a hammer in his hand.

Along the roads, in the valley of Eisenbach, intermixed with others yet in activity, I observed a number of mines that had belonged to individuals, but had been seized by the Austrian government, which now holds the major part of them. The proprietors were even compelled to melt, in the government

forges, the minerals which they had prepared. It gave me pain to see buildings and establishments in ruins, the multiplicity of which attest the inherent riches of the soil. All the implements for pounding and stamping with belong to the state; their number is pretty considerable, and their clattering, in a sort of cadence, helps to break through the solitude of the valley wherein we seem to be secluded from the world. Every where I met with miners reduced to poverty, whose pale figure and particular dress, most commonly covered with mud, strongly attracted my sympathy. From their earliest years they have been habituated to the hardships of a miner's life, but these alone were comparatively overlooked.

At the extremity of the valley of Eisenbach, I met, for the first time in Hungary, with gypsies, known both in Hungary and Germany by the name of Zigeuners. It was at the village of Bzenicza; they were in a little hut made of branches and clay, and they were lying together, men, women, and children, on a little straw and dried herbs. In the vicinity of their cabin was a forge where they made hatchets, knives, &c. for sale. One of them was an aged person, had been in Germany, and spoke the language; I entered into discourse with him, but could learn nothing as to the origin of his nation; all that he knew was, that he was born in Transylvania, and that his children and grand children were born in different places. When I asked why they did not fix in some village where they might live more comfortably, he made a sign with his head that it was not agreeable to their inclinations.

The Zigeuners, in general, retain a particular national character, and this has been observed for three centuries, as they never marry but among themselves. They are of low stature, mostly meagre but well made; their complexion is tanned, or rather copper coloured, their eyes black and vivid, teeth white; in fact, their physiognomy has something in it foreign to the European. The women, partly from the negligence of their attire, are disgusting, and reminded me of those old mummies that we find in cabinets of antiquities. It is wretched living that so disfigures them, for the girls are well made, and their figure is far from being disagreeable.

The general opinion is, that marriage does not take place among this class, but that the women and children are in common. The latter remain entirely naked to an advanced age, and I have sometimes seen girls of their full stature, and well formed, in a state of nudity; I remarked, however, that they always shunned the presence of strangers. A set of naked children, with their dark skin, ill combed hair, &c. seemed to

me, like little fiends, and I always surveyed them with painful sensations blended with pity.

The Zigeuner has ever been addicted to a rambling life, neglecting advantageous offers on the part of the sovereigns. Maria Theresa and Joseph II. endeavoured to fix them in Transylvania and the Banat, but could prevail only on a small number that applied themselves to agriculture. When they remove, they take their all with them, that is, a few rags and certain instruments to carry on their trade. They live much in the woods, or near to the villages, where they sometimes stop several years, and, at last, decamp suddenly without previous notice. We see nothing in their cabins but a few earthen pots and a little straw, and, in winter, much of their time is spent smoking together—men, women, and children. They appear very fond of the caustic and oily soot, nauseous to the scent, that lodges in the tube of their pipes. They ask, pressingly, for this, when they see any one cleaning his pipe before them.

These gypsies are indolent and vicious, never working but from the pressure of necessity. The most common trade among them is that of blacksmith, and it is they who manufacture the little iron or copper hatchets with cane handles every where met with. Not a few are musicians, and some have risen to celebrity; they then roam about the villages playing to the peasants on holidays. They have their slight of hand tricks and posture masters, though less in Hungary than elsewhere. They are subtle and active, and pilfer any little articles that fall in their way; but I never heard of gross enormities among them. I have frequently met with them in woods where they might have robbed me with impunity, but they never spoke, unless I addressed them first, and then, after answering, they would ask for some tobacco.

The Zigeuners have a peculiar language that has no analogy with any other. They are not originally European, and were not known in France till the beginning of the fifteenth century. It is certain that they were in Hungary in 1417, and that then great numbers of them were scattered throughout Wallachia, Transylvania, Moldavia, the Buckawine, &c. In 1427, a band of them came to Paris, representing themselves as inhabitants of Lower Egypt, first converted to the Christian faith, relapsing into Mahometanism, and admitted to penitence by Pope Martin V. who, by way of penance, ordered them to travel about every where for seven years, without sleeping in beds. The Parisians would not receive them, and they were sent to la Chapelle, near St. Denys, where people went in crowds to hear them tell fortunes. Their conduct, however, was complained of, and the Bishop of Paris, to prevent greater disorders, excommunicated

all who pretended to tell fortunes. These vagabonds then left the country, but either they or others returned, for an ordonnance of the states of Orleans, in 1560, ordered all impostors, under the name of Bohemians or Egyptians, to quit the kingdom under pain of being sent to the galleys. It was, probably, in the fifteenth or sixteenth century that they arrived in England, where they are known by the name of gypsies.

Authors differ as to the origin of the Zigeuners. Some trace them to Cilicia and Assyria, others consider them as Persians, of the branch of the Usbecks; others derive them from Zingitania, in Barbary, turning the word Zingare into Zingari and Zigeuner, names given them in Italy and Germany. According to some, they are real Egyptians, having been called Pharaoni, while others bring them from Asia Minor, in 1403, after the defeat of Bajazet by Tamerlane. Grellman refers their descent to Hindoos of the cast of the Parias, who were driven out of their country, at the time of the conquest of India, by the same Tamerlane. It is generally agreed that they are not originally Europeans. As to the name of Bohemians, this is applied in France to vagabonds of every description; the first gypsies that arrived had probably passed through Bohemia; the appellation, however, is considered as injurious.

The Zingares have appeared, at times, in such numerous bodies as to excite uneasiness in the inhabitants of the countries through which they were passing. More than 60,000 have been counted in Hungary and Transylvania, and when the Buckawine was ceded to Austria in 1778, out of 7000 inhabitants, 1000 were Zingares. In the census, under the Emperor Joseph in 1783, the number for Hungary amounted to 40,000. There are many also in England, but in France, Spain, and Italy, where they must conform to somewhat of a civilized regimen, their number is very small. The children among them are much fewer, in proportion, than among the peasants of the countries where they reside.

EXCURSION IN THE VALLEY OF HODRITZ.

I made excursions through all parts of this valley; the mines are pretty numerous about Hodritz, but terminate there. Coming to a village called Kopanicza, inhabited by Germans, from Austria and the frontiers, I was preparing at the church to take the height of the barometer, when I found myself presently surrounded by all the women of the place. They were astonished at the novelty of the spectacle, and were disputing about the nature of the barometer, (that of Fortin) which sparkled in their eyes, and they deemed it a wonderful machine. One of them then became a Ciceroni, and explained to the others

that it was an instrument to observe the firmament with. I could not perceive one man while I stopped in the village, which was more than an hour, or even in the neighbourhood. One woman offered to conduct me on a road that would take me to Viszoka, but I walked quicker than her, and she left me with a direction to go on straight forward, although there was no road.

Arriving at the heights near Viszoka, about four o'clock, I found myself very much fatigued, having, for two nights, slept in a manner in the open air. After leaving Hodritz, where I dined on a bacon salad, I could get nothing to eat but black bread and milk. In lieu of descending to Steinbach, where I might take post, I renewed my ramble, and was near being lost in the mountains of Szitna; my compasses became my guide in the woods, and night did not overtake me till I had reached the heights of Windchacht, where I recovered my knowledge of the road. About eleven I reached Schemnitz, so exhausted that I was unable to stir out the next day. This was one of my most fatiguing journeys, and brought on a pain in my eyes that was very troublesome and did not leave me while I remained in the country. I attributed this to the coolness of the nights, the more dangerous from the great heat of the day-time. Frequently after 20 or 25 degrees of heat during the day, I have known the thermometer fall down to 12 in the night. Such a difference, with the humidity that attends it, produced an effect on my organs only to be conceived by those that have had the like experience. I would earnestly recommend to foreigners, travelling in Hungary, to wear warm clothing sufficient to be a protection in case of passing the night abroad. The peasants, who often lie in the open air, have the precaution to carry about them pelisses of sheep's skin. For my own part, obliged to be frequently on foot, and having sometimes two or three men with me that would soon be loaded with stones, I was unable to make a due provision beforehand, and though my constitution was robust, my health was somewhat impaired. I would not advise any one to venture himself in Hungary as I have done, without previously consulting his physical and moral constitution. Much depends on the force of habit, on energy of character, and, above all, on the enthusiasm of a naturalist to brave the privations and fatigues incidental to such journeys.

EXCURSION IN THE VALLEY OF GLASSHUTTE.

There are two roads to pass from Schemnitz to Glasshutte, one a footway over the mountain of Szallas, the other a high road through the basin of Schemnitz, to the foot of the moun-

tains that border it on the west. It would be requisite for a geological traveller to take both these roads, but, to avoid fatigue, he might go by the Szallas, where the greatest part of the way is on a descent, and return by the high road, which is the easiest.

In leaving Schemnitz, along the high road, we pass at the foot of a mountain, named Rothenbrun, that overlooks the town and stretches nearly from east to west. According to tradition, one part of the town of Schemnitz formerly stood on this mountain, and was overwhelmed by an earthquake. It might have been a partial fall of the mountain, as the rock, in its upper parts, appears cleft perpendicularly to a vast height.

About an hour's journey before we reach the village of Glasshutte, there is a gallery of mines, now neglected, as the profits did not answer the expenses. It contained veins of argentiferous lead. The village is in a pretty agreeable situation, though the walks about it are rather difficult. There are several bathing houses that are well frequented in the fine season. The mineral waters that supply the baths proceed from a mass of calcareous tuft that contains remains of plants and terrestrial shells; they form a hill on which stands the church of the village.

The waters are acidulous and ferruginous; their temperature, at the springs, is 43 degrees (Reaumur), that of the air being 14. But in other springs that I met with, at the foot of calcareous mountains, the temperature was only from 24 to 30 degrees. In an excursion from Glasshutte, I had to pass over some mountains bristled with wood, and where, at every step, are steep precipices or rapid descents, vast fragments of rocks, and a number of antique castles, raised on points scarcely accessible. Those which I have met with elsewhere, in the midst of the wildest forests, might seem to have been the haunts of robbers, or served perhaps as retreats to the victims of those disasters, the horrors of which are traced in every page of the Hungarian history.

JOURNEY FROM GLASSHUTTE TO SCHEMNITZ.

My return to Schemnitz was by the mountain of Szallas. I took a little foot-path that ascends towards the mountain, but lost myself a second time in the woods, though assured by a peasant, my conductor, that, having worked in the forests of the country, he was well acquainted with the way. I wandered about the whole day, depending on his pretended knowledge, but towards night was obliged to take my compasses for a guide. My conductor was perplexed and puzzled, roaming about in every direction, and I had some difficulty in

persuading him that I could find a way out of those winding gorges and antique forests. Throughout Hungary, the peasants are afraid to trust themselves half a league from their village; I have frequently met with some that would not pass the summit of the mountain that overlooked their valley. In general, I was advised not to venture too far, as robbers, they said, haunted the heights. Many dismal stories were told me on this head, but I have explored all parts, without apprehension of danger. These prejudices seem to have descended from ancient times, when it would have been imprudent to advance far into the woods, which now may be penetrated with safety.

The point of Szitna is the most elevated, not only of these parts but of the whole circumjacent country. Its height above the level of the sea is 1338 yards. June 9, 1818, the height of the barometer, on its summit at noon, was 686 mill. 8 gr. temperature 6, 5: weather cloudy; wind, a strong northerly.

In one of these excursions, I visited a gallery of mines where the workmen had found what they called large pieces of wood, with remains of vegetables, in the heart of coaly substances. The officers considered them as anthtracites, but I am inclined to adopt the opinion of the miners, that they are lignite, though I cannot pronounce positively, not having seen them. Near the village of Illia, the miners, in their labours, find bituminous pieces of wood, and also wood opalised.

Returning to the mountain of Snitza, which in my rambles I had lost sight of, I found its point or summit completely overlooking all surrounding objects to the distance of many leagues. A little square pavilion has been erected here, by Prince de Kohary, which is visible at a very great distance, and which, from the plains of Schemnitz, appears like a shepherd's hut. A balcony runs round it, whence, at our ease, we may survey a vast extent of country. In this magnificent view the observer traces, on the south, the plains of Hungary. His eye, glancing over the mountains of Dregely, reposes on an immense horizon. On the east, various groups of mountains stretch, successively, to a great distance, and to the north, we perceive the lofty granitic and calcareous crests in the comitats of Zips, Lipté, &c. and which join the central groupe of Tatra. The cimex, or highest point of this last, is the most elevated in the whole kingdom of Hungary. M. Waldenburg makes it 2666 yards above the level of the sea. The peak of the Calvarienburg appears, from Szitna, like a point in the middle of a plain; Schemnitz and Duller look like heaps of hovels, and the villages and buildings for the mines can scarcely catch attention. The castle of Antal, belonging to the Prince of Kohary, is the only object to arrest the spectator's view. On the 10th of July,

1818, the height of the barometer, from Szitna, was 674 mill. 3. Temperature 15 gr. flying clouds, wind northerly.

At Tiszolez, I was informed that opalised wood was in such abundance about Uhorska, that the church of that of some neighbouring village was wholly constructed with it.

The environs of Palotja are somewhat remarkable from the depots of lignite, and relics of shells of various descriptions. They have evidently been deposited under waters, tossed about in every direction, and the waters must have covered them long enough to allow of their living and multiplying there. The quantities of the remains of the molluscæ kind are immense. At the southern foot of Szitna, an argilous matter is found which has long been in use for the manuufacture of porcelain at Vienna.

EXCURSIONS TOWARDS THE PLAINS OF HUNGARY.

By the road which leads directly from Schemnitz, we advance to a flat, where we see the mountains lowering successively, and the eye catches a glimpse of the vast plains of Læva. We then seem to breathe a new air. Nature seems becomingly to smile, decorated with forest flowers and richer apparel, and we quit, with pleasure, the cold and savage country wherein Schemnitz lies. As mineralogy was one principal object of my journey in Hungary, I may here insert some observations that I made generally.

The quantity of gold, silver, and lead, that the mines of Schemnitz supply annually, is not correctly known. It is certain that the products, at present, are much inferior to those at former periods. Often, from the pressure of different wars, the lateral veins have been neglected; these and the parts less rich were resumed in times of peace. M. Schwartner assumes for a term of comparison, the eight years of peace that elapsed from 1780 to 1788; he rates the products of the mines of Lower Hungary at 12 or 1300 marcs of gold, and from 58 to 59,000 marcs of silver. Adding to it the products of Upper Hungary, he makes out a total of from 15 to 1700 marcs of gold, and from 70 to 74,000 marcs of silver, per annum. But this does not appear to be an average term, as at periods, both before and since, the products have been much greater.

It is well known that at Kremnitz, from 1680 to 1693, more than 200,000 marcs were procured annually. In 1772, the mines of Lower Hungary remitted to the mint at Kremnitz, 53,860 marcs of silver, and 2291 marcs of gold. From 1740 to 1773, a hundred millions of florins were obtained from Schemnitz and Kremnitz, which would yield annually a sum of more than eight millions of francs.

M. Heron de Villefosse computes the products of all the mines of Hungary at 2600 marcs of gold, 80,000 marcs of silver, and 6000 quintals of lead. The gold and silver would then furnish an annual sum of 6,344,000 francs. But these numbers, which represent, pretty well, the mean annual products of times more remote, are much superior to the products of the present day.

Hungary (higher and lower) supplies about half the gold that the mines of Europe produce. Transylvania furnishes nearly the other half.

The total quantity of gold extracted from the mines of Europe may be calculated at 5300 marcs. How immense the difference compared with the produce of America, which rises to 70,647 marcs!

The quantity of silver drawn annually from the mines of Hungary, is somewhat more than one-third superior to what is yielded by the mines in the rest of Europe, the total of which may be estimated at 216,000 marcs.

In these products France can enter into no sort of comparison. The quantity of gold drawn from our rivers is inconsiderable, and our mines of argentiferous lead do not yield above 7500 marcs of silver.

Generally speaking, the mines are wrought at Schemnitz as in other countries, but on a larger scale. The pits and the galleries are very well executed, and quite compact; the reservoirs of waters are disposed with much art; several fine arrangements evince the care and grandeur of conception manifested under the special protection of the sovereigns. If science and their improvement of the art were more attended to, Schemnitz would again become one of the finest establishments in Europe, and rival that of Freyberg, in Saxony.

CHAPTER V.

THE COUNTRY OF NEUSOHL.

The district of Newsohl formed one part of my scene of observation; the road lies through the valley of Koselnick. Here the declivities are less abrupt; vegetation has not lost its strength and beauty, but covers the face of nature; the gloomy fir trees disappear. From Altsohl to Neusohl, the road winds along the banks of the Gran, in the bottom of a broad valley; approaching the town, we arrive at the foundry to which the minerals of Schemnitz are conveyed.

The town of Neusohl owes its origin to a colony of Saxons invited thither by King Andrew II. for the purposes of mining, but the German race is now extinct, and the place is wholly inhabited by Sclavonians. Its situation on the banks of the Gran, at its confluence with the little river Bistricza, with the high wooded mountains that at a distance appear to advantage, exhibiting an amphitheatre of verdure, might characterise it as a very agreeable town; but, detached from the rural scenery, it has a sombrous aspect, and is, in general, ill built, except a few houses; among these we may distinguish the palace of the ancient bishop. At my first coming, it seemed as if it had been consumed by a conflagration, though I soon found it was owing to the construction of the houses, at least in the principal street. Most of these have but one story, surmounted with a very lofty roof, but to represent a second story, an isolated wall appears to conceal the roof, and which terminates in a cornice. In this wall are one or two openings in the form of windows, but without glasses or a sash, and we can see the dark tints of the roofing through them. But the first impression arising from this singular construction is, that the house is in ruins, that the roof and windows are decayed, and that the case only is left. The mistake is soon detected, and these false windows appear intended to pass through them a heavy piece of timber that serves for a gutter. In some houses somewhat more of luxury appears, and real window blinds, painted green, are annexed to the wall for a deception; however, these enormous gutters, conveying water through window blinds to the distance of ten or fifteen feet, in the middle of the street, must have an odd appearance.

At my first arrival I became acquainted with M. Zipser, one of the first mineralogists in Hungary, and also with M. Beniczki, notary or secretary to the comitat, who, to a variety of general information, adds a particular inclination for geology. Their collections contain interesting details relative to Hungary, and from their conversation I derived useful instructions for the rest of my journey. Among other civilities, I might notice their accompanying me in several of my excursions.

In one of these we visited Herrengrund, where copper mines have been worked from the thirteenth century. The kinds of copper are the pyritous, the grey copper, and the green and blue carbonated copper. The decomposition of the minerals produces a great quantity of sulphate of copper, which dissolves in the waters that filtrate from all parts of the works. These waters are carefully collected in cavities, where they have a process to decompose the salt, and so to extract copper by cementation.

In another excursion, M. Beniczki accompanied me to an old lead mine which had been abandoned, and where he had again set men at work. The old entrance lies at the foot of an immense wall of rocks, in a situation truly picturesque. There was always a natural cavern, which the mining labours have extended. Of the minerals, the principal masses are a brown earthy carbonated iron, and an earthy oxydated iron, in which are portions of sulphurated copper and galena, more or less considerable. There is also carbonated copper, green and blue, carbonated lead, phosphated lead in mass, sometimes, but rarely, crystallised, and of a greenish yellow; also calamine in little square masses.

We came afterwards to the little town of Libethen, elevated to the rank of a free and mining town, by king Lewis I., son and successor of Charles Robert. Though founded by the Saxons, invited thither by king Andrew II., it is now wholly inhabited by Sclavonians. The town suffered much from wars and revolutions. About the end of the fifteenth century, during the wars of Mathias Corvin with the Bohemians, it was attacked suddenly, when one part of the inhabitants were driven to quit the place, and the rest, who had fled to the mines, were miserably suffocated by the fire and smoke thrown into them. The town then remained desolate forty years, till the mines began again to be worked, at the beginning of the sixteenth century. The town is but indifferently built, and lies in rather a wild situation, at the bottom of a valley, with groupes of mountains on every side. It is not larger than one of our smallest villages about Paris. We came also to the village of Sajba, famous for the most beautiful opal jasper and opalised wood; hence come those samples of a yellowish white opalised wood, and others of a very brilliant grey, that have long been in our collections at Paris; they are found here in every shade of colour, lustre, and pellucidity.

Tradition reports that the country of Libethen anciently had gold mines, but it is certain that, for a long time, nothing but copper has been worked. The mines must have been very important to raise the town to the rank of free and royal, but now it is partly abandoned, and the number of workmen greatly diminished.

CHAPTER VI.

THE COUNTRY OF KREMNITZ.

We can go from Neusohl to Kremnitz by a foot way, to the W. S. W. of the town, by traversing the range of mountains

that form the limits of the two comitats. The forms of these are often very grotesque, from having been rent into various shapes. A very narrow path rises very rapidly, and in the declivities of some of the mountains I observed a very thick vegetation, which, though unfavourable to the geologist, would offer an ample field of research to the botanical enquirer. Here were plants, to a great number of which I was a stranger; unfortunately, those I had collected during my travels were lost, among many other objects of natural history. I particularly regret a multitude of insects, collected in different countries and elevations of the mountains, which required classification in the various branches of entomology.

The town of Kremnitz (Kormecz Banya, Hung.) is one of the most ancient royal free towns of Hungary. It is said to have had mines worked in the time of the Romans, but in the middle ages, the Germans resumed the labours, and gave rise to the town. It is they, in fact, who have successively renewed it, after the various devastations it underwent, in common with other places. Many Germans yet remain in the country, who speak an unintelligible Gothic German, as harsh in pronunciation as the German Swiss. The town lies in the bottom of a narrow valley, overlooked on the right and left by high mountains; its position is far from being agreeable, and its interior has little to exhibit but the mint, to which all the gold and silver from the mines of the whole kingdom is conveyed to be inspected, and where all the preparatory operations, as that of acids, &c. are conducted on a great scale. Out of this establishment, which also stands in need of improvement, there is little worth seeing, and a stranger would find it difficult to get a decent lodging. I could not have procured a lodging in the only public house that was shewn me, if an individual, to whom I applied in the street, had not generously pleaded my cause with the hostess, who, yielding to his request, helped me to some bad soup, and to something of the same nature, called *kneps*. She assured me that there were no eggs in the town, and to get a wretched fowl at night, my servant was obliged to threaten the hens that were running about the house. It was a Friday, and the people here, scrupulously adhering to the laws of the church, observe meagre days, and cannot conceive how a traveller dare do otherwise. I have sometimes dined with the curates on these days, and meat then was provided for myself, while they contented themselves with a few vegetables.

One general observation I made respecting Kremnitz, that it is only in one species of earth or soil, trachyte, that the mines are found. In that, and the concomitant characters,

there is a striking analogy between the local stratifications of Schemnitz and Kremnitz.

At the bottom of an immense cavity, formed by a perpendicular dislocation of the mountain, I observed a pool of ferrugineous water, with bulrushes, of the most beautiful green I ever beheld, growing in the middle. Some attribute the colour of the plants to the influence of the waters, and it is a fact, that, wherever I have noticed them, the green colour of the vegetation is much more intense than elsewhere. The cold at the foot of this immense excavation was insupportable, but I was astonished to find the thermometer not lower than 13°, that is, only 2° below the temperature at the top of the mountain. In places of this kind there is a humid vapour which penetrates the clothing, but which, from the warmth of the body, soon becomes a dry vapour; hence, we feel a cold much more piercing than what comports with the temperature of the circumambient air.

In one of my excursions from Kremnitz, I came to the village of Perk, where every thing reminded me of journeys that I had made in the south of France. The face of nature was gay, the sun's vital beams and heat were every where felt, bright and shining forests of firs on the left, penetrating, as it were, through the gloom that surrounded them, and perfuming the air with a resinous scent. Hid from the public walks of men, I thought I discerned some of nature's finest touches, though different parts of the soil were sandy and dry.

In my road to St. Kerest, I remarked siliceous, fissile substances of a black colour, but which grow white before a fire, and that retain all the appearances of vegetable impressions. De Born, in his description of the same tract, makes mention of petrifications, which he compares to vegetables, or to corals. Ferber has noticed these organic remains, and compares them to the roots of marine plants, and to the stalks of one that grows in marshes, the *thypha palustris*. M. Esmarck also alludes to them, under the designation of calcedonies and petrified reeds.

The town of St. Kerest is beautifully situated on hills that border the Gran; it was the residence of the ancient bishop of Newsohl. There is a very stately chateau, and a number of neat dwelling houses, with an excellent auberge, at the post-house, where even pedestrian travellers are treated with great civility.

The village of Prochot is inhabited by ancient Germans, whose language my servant, though a German, found it very difficult to understand. A stout young man, about thirty years of age, made a tender of his services, as a guide to a mountain

in the neighbourhood, but we had no small trouble to get his mother's permission. The good woman was alarmed and afraid of me. She was overjoyed at our return, and I received from her afterwards, every mark of civility. These simple people, not without reason, harbour a distrust of the inhabitants of the towns; to manage them requires a certain frankness without rudeness, and little occasional liberalities. When once gained, their attachment grows fervid, and no exertion will be spared to render themselves accommodating and agreeable. The good woman herself was an instance of this, offering me some crumpets she was baking in the oven, and wishing to detain me till I had explored every corner of the adjoining mountains. One of these, which I scaled, had an immense plateau on the crust, covered, not with resinous, but with hazel-nut and juniper trees.

At St. Kerest I again met my travelling companions, and we set out together for a fresh excursion into the country of Schemnitz. But the sum of my observations there, of a general kind, have been already noted. My stay in Hungary had been longer than what I had contemplated; I had almost exhausted my stock of ready money, and the dates of my letters of exchange, for different parts of Hungary, had expired. I found it necessary, therefore, to return to Pest, for the re-establishment of my pecuniary concerns.

CHAPTER VII.

VISIT TO CERTAIN MOUNTAINS IN THE COMITAT OF NOGRAD.

I shall introduce here a little adventure that occurred, while exploring the groupe of the mountains of Dregely. I intended fixing my head quarters at Nograd, which is marked in the maps as a market town, and where I had supposed the assizes for the county were held. But on my arrival I soon found my mistake; it is but a small village, and cannot be much frequented, as it does not lie on any road. I was conducted to an auberge where I might have had accommodations, but for the uncouth and avaricious humours of those who kept it. I ordered a supper, being hungry and fatigued with my day's journey, and reckoning upon it, I walked up to the castle and other parts of the village.

From the remains of the towers and walls, the castle must have been very strong and extensive, and a place of importance. A great part of it was destroyed in 1685, by the explo-

sion of a powder magazine; the Turks had a garrison there, but they abandoned it. Nograd, now a wretched village, had been a considerable place in ancient times, but was desolated by successive wars. Returning to my host, I was equally surprised and mortified to find no culinary preparations. The mistress had been at a neighbour's in search of a pullet, and made free to fetch one away in the absence of the family; this, however, was soon reclaimed, or its value fixed at a florin. The *aubergiste* would not pay more than half, and the other, in a foaming fury, snatched the fowl, then ready for eating, from the spit, threw the latter in the face of my hostess, and ran home. I now promised to pay for the pullet, cost what it might; I even repaired to the house of this neighbour, but she had retired elsewhere, probably to devour the fowl at the house of another neighbour. I was then forced to be content with three eggs, which I had to share with my servant and the peasant that had been my guide.

In my journeys I visited the mountain of Dregely, which is a conspicuous object, and one of great notoriety in Hungary. Its form is conical, and it stands altogether detached from the mountains that surround it. Its height above the level of the sea is about 1260 feet. There are some remains of its old castle, consisting of dilapidated walls, cemented with a mortar not very solid, of lime, siliceous sand, and pebbles of quartz and granite. In the eastern quarter are a door and a staircase, both cut out of the solid rock. From the top of the walls is a commanding prospect over the whole country, which takes in many extensive ranges of distant mountains. On the 28th of Sept. 1818, the height of the barometer from the castle of Dregely, was 724 mill.; temperature, 16 gr.; weather, flying clouds; sun very hot.

In my journey to Vissegrad, the road winds along the Danube, and sometimes approaches so near that we pass through the water. The castle of Vissegrad was formerly the residence of several kings of Hungary, and its apartments and gardens were decorated in such a style of magnificence, that a pope's legate, in the reign of Mathias Corvin, gave it the name of the Earthly Paradise. When it was built is unknown; it is first noticed by Hungarian historians, in the reign of Lladislas I. in the eleventh century, as the prison of king Salomon, after the defeat of the Wallachians, whom he had incited to insurrection. It was probably then of minor importance, till enlarged and beautified by succeeding kings. Charles the First preferred it to any of his other houses, and entertained in it, with extraordinary pomp, the kings of Bohemia and Poland. Mathias Corvin embellished the gardens with marble statues,

basins, jetteaux, &c. The royal habitation and the gardens were at the foot of the mountain, on the banks of the Danube, where they could not occupy a very considerable space, but the castle was on the isolated point of an eminence, about 650 feet above the Danube, which, in this part, may be about 400 feet above the sea. Vissegrad is a Sclavonian word, and derives its name from its position; Vissi, most high, and Hrad or Grad, a castle.

It was in the castle of Vissegrad, then considered as the most secure in Hungary, that the crown sent by pope Sylvester II. to St. Stephen, as a gift from heaven, was preserved. This was agreeably to an ordinance of Lladislas II.; it was placed in the most inaccessible part of the fortress, and confided to keepers, selected from among the Grandees, who were under an oath only to resign it to the nation assembled, and to lay down their lives in the defence of it. This consecrated crown, however, was often carried away during the troubles; sometimes by the dethroned kings, who, by that means, prevented the coronation of their successors, and sometimes by those who pretended to the throne. It has frequently given rise to bloody wars, and thousands have fallen victims to preserve or to regain it. Such was the high importance attached to it, that the place of its custody was fixed by a decree of the nation assembled, nor was it to be removed but by a similar order. Joseph II. had it removed from Presburg (where it had been deposited by an order of the assembly of 1608) to Vienna, but this act of authority was considered as arbitrary, and derogating from the rights of the nation. It contributed not a little to retard the various reforms which that monarch had projected. Fears were entertained of a general insurrection, and Joseph, in rescinding many of his acts, addressed a manifesto to the nation, which shewed that his object was the general good, and that his intentions were grounded in purity, justice, and equity. The crown was lastly removed to Buda by another order of Joseph, Feb. 18, 1790, two days before his death, and this event was hailed with transports of joy throughout the whole kingdom.

The castle of Vissegrad, taken and retaken alternately by the Germans and Turks, is now a huge heap of ruins. Close to the Danube we yet find some old towers and a wall, with bastions, ascending thence to the summit of the mountain, to communicate with the principal fortress. The ruins of the latter are very considerable, in walls and round towers. We may plainly distinguish the double walls that formed the exterior inclosure, between which lay the pathway that led to the fortress. In the interior appear two successive fosses, one

above another, and in the centre stands the castle on an isolated rock, cut perpendicularly to the height of several yards. In the remnant of the castle are certain chambers and apartments, with ogive gates and windows, ornamented with little pilasters, round or square, strongly reflecting the taste of the ancients. But, in general, we see nothing but walls thrown confusedly one over another, and filling the fosses with rubbish. In the inner court is a cistern in the shape of a bell, into which all the waters from the different roofs emptied themselves. Opposite this, in the middle of the wall, we observe a sculptured stone, containing some coats of arms, with a Latin inscription half defaced, and the date of 1493 in Roman ciphers. From the top of the walls the eye traces the course of the Danube; meandering to the west behind the mountains, and then turning abruptly to the south, his stream rolls onward through the champaign districts of Pest, and the vast central plain. As a comprehensive and animated view of the productions of nature, I was enchanted with it.

As to the whole range of walls, they are composed of the rocks whereof the mountain consists, but the gates and windows, and all parts that require to be cut in regular forms, are of very solid calcareous tuf, that contains in it a vast number of vegetable impressions. These tufs have been brought from the neighbourhood of Old Buda.

In the environs of Vissegrad I first noticed (though I found them, afterwards, in other parts along the Danube) two species of fluviatile, or river shells, that are not common in Europe. One belongs to the menalopside genus, and the other to the Paludine; the latter has obtained the name of Naticoide, in a work now publishing by M. de Ferrusac. I was very desirous to see their molluscæ, or living animals, in order to study their characters, but could not succeed: the shells of both are defended with corneated opercules.

Here I may observe that immense collections of fossil shells, such as are only to be found in the sea, have been excavated in the hills of freestone that run from north to south, between the rivers of Gran and Ypoli. I have remarked also numberless beds of different shells, with strata of lignites, in carbonaceous substances, in my rambles through Hungary.

On the flanks of the freestone hills, and on the banks of the rivers that intersect them, are still found the remains of large animals, as teeth, heads, thighs of the elephant and mammoth; several of these are deposited in the cabinet of Pest. There are specimens of the elephants of Asia and the elephants of Africa. Those bony fragments have been found in various

other parts, as also in the plains of Hungary, but, more commonly, in the soil of alluvion than in masses of freestone.

To other observations made in and about the mountains of Dregely may be added some notice of Acsa. It is chiefly remarkable for the castle and park of Baron de Pronay. From the terrace there is a fine view over the surrounding mountains. The little town of Watz is deserving of notice, being one of the most agreeable in Hungary. According to history, it was built in the reign of Geysa I. who, on gaining a decisive victory over Salomon, caused a church to be erected in the midst of the forest that covered this country. The name of Watz was that of a solitaire or recluse who lived in the forest. It became afterwards a considerable place, and the see of a bishop; and later, the cradle of letters and philosophy. The town suffered much in the invasion of the Mongols, notwithstanding the vigorous resistance of the inhabitants. It was exposed to similar disasters in the reign of John de Zapola, in his wars with Ferdinand of Austria. It was taken also and retaken several times by the Turks; their incursions, whether as enemies or allies, contributed to retard the progress of civilization. The entrance of the town is distinguished by a beautiful triumphal arch at the extremity of a fine avenue of trees; this is on the side of the Danube. There are several very good houses, and some public buildings, for affording the means of instruction. Among others is an institution for the deaf and dumb, founded by the Emperor Francis, in 1802. And what is not the least recommendation to a traveller, here are several good inns.

CHAPTER VIII.

THE MOUNTAINS OF MATRA, AND THE ENVIRONS OF ERLAU.

I arrived at Pest, July 17th, towards evening, and on the 20th, in the morning, I was on the road for Aszod, where an announcement to the Baron Charles Podmaniczky had already preceded me. The two intermediate days had been devoted to the arrangement of my pecuniary concerns, to visiting the museum of natural history and that of the observatory, as also to an acquaintance I had formed with Dr. Haberle, Director of the Botanic Garden. I obtained here some valuable information relative to certain parts of Hungary, and for which I have also to thank M. Schuster, Professor of Chemistry in the University.

In renewing my pedestrian excursions as usual, I passed by Godolo, where there is a fine chateau belonging to Prince Grassalkoritzs; it stands on the right hand of the road, but very near to it, and the grounds contain a number of plantations and inclosures. The next object to attract notice was a gibbet, the first I had met with in Hungary, bearing the carcase of a criminal who had suffered six months before. The spectacle seemed too shocking for the feelings of women and children, and the sensibilities of humanity are outraged and nauseated by it.

These impressions I retained till my arrival at the castle of Aszod, where my gracious reception and entertainment soon effaced the disgusting sensation. The neighbourhood was not favourable to the leading object of my journeys, and I departed, the Baron accompanying me to Gyongyos, where he introduced me to several officers of the Palatine regiment.

Lieut. Col. Baron de Edelsbacher and Count Teleky gave me letters for the Baron D'Orcy, at Parad, in the northern part of the mountains of Matra. I set out with the horses and servants, supplied by these gentlemen, and attended by an hussar, whose presence might inspire the greater security. This amiable and preventing kind of hospitality I witnessed throughout the country, and I cannot but speak highly of the generous attentions of the good Hungarians. At Parad my entertainment was no less agreeable, and the Baron D'Orcy accompanied me, in my rambles, with all the promptitude imaginable.

The village of Parad is but small, but there are ferrugineous waters that, in the fine season, attract company. The Baron D'Orcy's habitation is only intended for occasional residence in the summer. Every thing has an air of the greatest simplicity, and the whole appears rustic and rural. It forms an assemblage of small buildings with only the ground floor, and disposed, on each side, so as to make a broad street or place. Some serve for the accommodation of the Baron and his people, and others for the reception of visitors. In the middle is a chapel, and in summer, the whole looks more animated and gay than some more stately chateaux. The amiable affability of its possessors might tend to strengthen this feeling.

I intended to visit a certain crater, mentioned by Fichtel, but the baron was eager to conduct me thither, and we accordingly set out in a caravan, the baron, the colonel of the palatine regiment, a neighbouring curate, and myself, with seven domestics or guides. In our way we went to visit some of the baron's alum works, long established, and I was instantly

struck with the resemblance of the rocks to some of Mont Dor, in Auvergne. The experiments that I made, after my return to Paris, on some specimens that I brought away, confirmed the analogy in the materials of the two places. With some precautions, alum might be procured at Parad, nearly as pure as that of Munkacs or Musaj, and, of course, like the fine sort known in France by the name of Roman alum.

After this we renewed our excursion to the mountain. For two hours we passed through very thick woods of oaks and beeches, and at different points I observed the *rosa spinosissima* in prodigious quantities, which, with the *crategus aria*, produced a very agreeable diversity. In all this tract I saw none of those eternal firs that appear every where, on equal heights, in the mountains of Schemnitz and Kremnitz.

Arriving at the crater, I found its depth about 180 feet. The whole cavity was filled with very large beech trees, also with crab apple and hazel-nut trees, and brambles, which it was often difficult to get clear of. The sides or walls are perpendicular in some points, and at others have a pretty rapid descent. I could not trace, either on the sides or in the parts adjacent, any vestiges of scorification, such as one would expect to find, had there been an ancient ignivomous aperture, similar to what exist in the extinguished volcanos of Auvergne. I examined every part, the sides, top, bottom, and am convinced that it never was volcanic; it has not even the ordinary form of a crater, an inverted cone, nor is it in the usual position, at the summit of a mountain.

Having acquired a certainty that M. Fichtel and others have been mistaken on this point, we again set out on our return to Parad. In about an hour, descending towards the village, we found the steward and a party of the baron's people, who had prepared a very good dinner, under a tent of branches and foliage. They had brought with them also a relay of horses.

In another excursion which I made to Erlau, I arrived at the town of Sirok, in a valley, through which runs the river Torna. Its ancient castle was built on the point of a white rock, nearly isolated, the flanks of which are torn by deep ravines, and not a tree to be seen about it; it is now in a ruinous state. The higher parts of the rock are almost every where perpendicular. Several chambers of the castle were dug or hollowed out of it. On these great walls we see fragments, and blocks of all sizes and colours, white, yellow, grey, &c., and in one of the caves, others of a black colour. In short, the walls, the courts, and fosses, exhibit, in a numerous collection, all the varieties of massive rock. This castle was taken by assault, in 1596, by the Turks, and the crescent

waved on its walls for a long time; at present, it is so encumbered with ruins that it is impossible to form a correct opinion of its strength and construction; from the space which it occupied it must have been very large.

The town of Erlau (Eger, or Jager, Hung. Agria, Lat.) is situated nearly on the confines of the Great Plain that forms, in some measure, the centre of Hungary. It was built by king Stephen, who made it the see of a bishop, since raised to that of an archbishop. It is one of the richest benefices in Hungary; the revenues were so considerable, that the ancient kings ordered the see to be reserved for their fourth son. The town is pretty well built; there are several very good houses, but, in general, it looks dull, which is common to all the small towns in Hungary. The most remarkable buildings are those of the university, constructed at the charge of more than two millions of florins, by the bishop, count Charles Esterhazy. Convenience, neatness, and beauty, are alike consulted; the professors are well lodged and accommodated; the classes, the apartments, are handsome and correctly arranged; the chapel, the library, the hall of conferences, are extremely elegant, and furnished with paintings of uncommon beauty. The buildings are surmounted with a very lofty tower, intended for an observatory, but, unfortunately, it was ill provided with instruments. The cathedral, and several other churches, the episcopal palace, and the house of the comitat, are structures which would not disparage other towns more populous, and from the heights, they give to this an aspect truly imposing.

Behind the town we discern the site of the ancient castle, now scarcely distinguishable by some remains of rubbish. Count Esterhazy, the bishop, was allowed to demolish it, and the materials were made use of in the construction of the University and other buildings. The battlements no longer exist to attest the valour of its ancient inhabitants, but the pages of history retain the remembrance. The town was completely destroyed, in the reign of Bela IV. by the invasion of the Mongols, who carried fire and sword into the heart of Hungary, and turned the most populous countries into vast deserts. But raised again from its ashes, defended by some fortifications, and yet more by Hungarian intrepidity, it sustained, with incredible energy, the most dreadful assaults and sieges. We cannot survey, without admiration, the sanguinary details commemorating the vigorous resistance of its inhabitants against the Austrians and against the Turks.

I shall quote here a passage from a French writer, concurring, with other testimonies, in favour of that patriot zeal which transforms the feeblest into heroes. Erlau was besieged

in 1555, by Mehemet Pacha. On the approach of the enemy's army, the whole town resounded with acclamations, men, women, soldiers, all vowed adherence to the following conditions: "the word capitulation is proscribed; death shall be the punishment of him that mentions it. Should the enemy invite to proposals of peace, the answer to be by discharges of artillery. In the case of provisions failing, we will devour one another, and the lot shall determine the victims. The women shall be employed in repairing the walls; they may follow their husbands to the breach, or at the sorties. To prevent any plottings to surrender, no assemblages of above three or four to be allowed within the town."

These desperate conditions were strictly observed; in vain Mehemet sends a trumpet with offers of peace; no answer is returned, and while he is haranguing at the foot of the walls, the inhabitants, in gloomy silence, place four pikes on the rampart, and on them a coffin covered with black, to indicate that the town should be their grave. The trumpeter reported to his general this terrible but eloquent reply; salvos of artillery soon dismantled the castle and unroofed the houses, but the first attack was repulsed, and 8000 Turks perished at the foot of the ramparts. Mehemet orders four assaults at the same instant; the women run to the breach, some rush among the enemy, others roll huge stones, or pour scalding oil on the assailants. The wife, seizing the arms of her husband, pierced by her side, the mother, those of her son, and all, forgetting their weakness and danger, think only of defending their country and religion, and avenging the death of their friends. These examples of female heroism gave a fresh stimulus to the ener ies of the besieged, who soon became the aggressors, and compelled the Turks to retreat, after the loss of more than 30,000 men.

The hills about Erlau are, in general, covered with vines, that produce a wine much esteemed, but very heady. It strongly resembles some wines from the banks of the Rhone, in Languedoc. Among these hills are some rocks of a grey, compact, calcareous substance, from which issue the hot springs that feed the baths of Erlau. My stay here was short but agreeable. The Baron D'Orcy had obligingly made his house in the town my home, though not present himself, and had my stay been prolonged, I should have met with more friends. The Abbé Titel, a young astronomer, who had spent some time in Paris, entertained me with perfect cordiality, and the Archbishop, Baron Fisher, testified his regret at my hasty departure. I had intended to return to Erlau, after visiting the

comitat of Gomor, but proceeded so far, in another direction, that the time would not have sufficed.

In general, I may observe, as a geologist, that an entire analogy exists between the mountains of Matra, the scene of these last excursions, as to the nature and disposition of the rocks that compose them, and those that I had more studiously explored in the country of Schemnitz. Among other points of resemblance, I found, as a naturalist, about Erlau, trunks and branches of opalised wood, as also various kinds of shells, fragments of obsidian, &c. As to the pretended crater, it is simply the upper end of a little valley, partly stopped up with a number of blocks that have fallen from the heights, and thrown in heaps one above another.

CHAPTER IX.

BASALTIC BUTTS OF SALGO, &C.

Quitting the mountains of Matra for a northerly direction, the most prominent object is the point of Salgo at a distance, the conical mass of which rises, in an isolated situation, above all the surrounding heights. On this mountain, according to Busching, the earth, charged with sulphureous vapours, kindled and burnt for two months together; this was in the summer of 1767. I shall not dispute the fact, though I could find no tradition or report concerning it; but if it took place, it could not have been occasioned by sulphureous vapours, the nature of the mountain not warranting the presence of such a combustible, though it was probably of igneous origin.

In exploring the mountain of Samos Ko, I came to an old castle on the summit, which must have been very spacious. Several stories are yet remaining; the walls are composed of basaltic prisms, laid one upon another, and cemented by a very rough mortar, of little solidity in its present state.

The mountain of Salgo, at about three quarters of an hour's journey from the village of that name, is a basaltic mass, rising up among woods and forests scarcely penetrable, and every where exhibiting marks of volcanic productions. They bring to mind the masses of scoriaceous substances about volcanoes, whether alive or extinguished, such as frequently are seen in the Vivarais, under or between layers of basalts. The summit of Salgo is a very narrow point; the castle which bounded it could never have been very extensive. Nothing is to be seen, at present, but some remains of walls, which more resemble

a tower for observation than habitations to reside in. Its mean height is about 1920 feet above the level of the sea. Barometrical observations, July 27, 1818. Summit of Salgo at eight in the morning. Height 710 mill. temperature 17 gr. Flying clouds, wind easterly. At the foot of the basaltic mass, half past seven, height 728 mill. temperature 17 gr.

About half an hour's walk from Salgo, is a mountain called Medve, similar in its formation. In piercing through the woods to arrive at it, scoriaceous matter appears scattered over the soil, though often concealed by a vegetable earth that has all the marks and colours of having been emitted from a volcano. At the mountain itself, the characters are so strongly marked that the most hardy neptunist could not call in question their igneous origin. I proceeded in search of a crater in these parts, but the top of the mountain exhibits only a *plateau*, or a level surface, pretty extensive and covered with trees. Scoriæ, however, of every description, abound, inclosed in a red earth, that seems to have proceeded from their decomposition.

In the midst of the plains of Fulek, is another mountainous crest of basaltic formation. It is on it that the remains appear of a strong castle, which, in the fifteenth and sixteenth centuries, was taken, alternately, by the Turks, Germans, and Factions of different parties. But here are no masses of scoriæ, but basaltic tufs of the colour of yellow ochre.

CHAPTER X.

THE ENVIRONS OF TISZOLEZ AND CERTAIN MOUNTAINS IN THE COMITAT OF GOMOR.

Renewing my excursions, I arrived one night, about ten o'clock, at Tiszolez, a little town inhabited by Sclavonians, and situated in the middle of a valley, through which runs the little river Rima. There was no inn, and to procure a lodging I made application to the judge, who had me conducted to a wretched *cabaret*, where was nothing but straw to sleep on. Unluckily, six Jews had arrived before me, whose filthy beards and squalid appearance obliged me to retreat elsewhere. I was taken to a small chamber filled with onions, butter, and cheese, and where a young man, the son, was snoring tremendously. Here I and my domestic passed a part of the night, and the guides, I believe, slept in the street.

In such circumstances I was not long detained in the arms of Morpheus; before day I was in the middle of the village,

imbibing the fresh air, and by six o'clock, had advanced a good way towards some mountains I was in quest of. On my return, I inquired for the evangelical minister, soliciting permission to introduce myself to him. Here fortune became propitious, M. Schulek received me with the most engaging kindness, and both he and his lady lodged and entertained me with cordial hospitality.

At Szlana are quicksilver mines, which I entered and explored. The works have been very extensive, but at present the quantities of mercury extracted are not considerable. I next entered the valley of Sajo, on my road to Bethler. The mountains, on both sides, are uncommonly rich in metallic substances, and especially in copper and iron; here are mines which have been, and yet are worked, in a great number of places. At Bethler are iron mines, establishments for forges, foundries, &c. of great importance; they are the property of Count Androssy. These minerals bear a strong resemblance to those of Sweden and Norway, where are whole mountains consisting of them; the analogy prevails also in the rocks that contain them.

In some mountains of these parts are caverns, of no small celebrity in Hungary, partly from their extent, and partly from ice being preserved in them during a great part of the summer. In caverns like these, it is generally thought that they are much colder in summer than winter, nature appearing here in contradiction to itself. I conceive this to be a mistake, from not accurately analysing the circumstances. These caverns are always in the temperature of melting ice, that is, at zero, in summer; and the sensation of cold is more intense as the external heat is greater. On the contrary, in winter, they are never below the external temperature, and no difference of sensation is perceived in entering them. In the first frosts the caverns retain the temperature of zero, on a supposition of ice yet remaining, whilst the cold without has reached several degrees; a sensation of warmth is then felt on entering them. It may be observed, further, that no ice, or very little, is found in these caverns at the beginning of winter, and the contrary occurs in the beginning of summer. In the first case, it is evident that the ice had not melted during the preceding summer, and that the frost had not lasted long enough to acquire fresh forms. In the second place, all the ice appears that had accumulated during the winter, and which had not yet had time to melt.

As false notions prevail on the above subject, I may add, that at the cavern Chaux, in the department of Doubs, it is evident that the ice is formed during the winter. The temperature within the cavern is always as low, in that season, as

the external temperature. The water then drops from the vault, in greater or less quantities, and congeals into stalactites and stalagmites, that continue increasing through the winter, the quantity of ice being greater in proportion to the length and the rigour of the frost. It increases even when the frost without is gone, as the air of the cavern is a long time in acquiring an equilibrium of temperature, and the maximum of the quantity of ice obtains only in the spring. Then it begins and continues melting through the summer, so that it is entirely melted, or considerably diminished by the return of winter, when similar phenomena recur. Both the caverns of Szclitze, where I then was, and that of Chaux, and many others in the mountains of Jura, have their apertures turned to the north, which must facilitate the lowering of the temperature during the winter, and keep it, at the same time, from rising rapidly during the summer.

The town of Dobschau* (Dobsina, Sclav.) is one of the most ancient mining towns of Hungary, and situated in the most mountainous part. It was founded by some Germans, in the beginning of the fourteenth century, for the sake of working its mines. Its mountains contain immense mineral riches; here are mines of copper, iron, and cobalt, the productions from which were very considerable, when strict attention was paid to this branch of revenue. According to the miners, all these minerals are in couches or beds, more or less condensed, and very few in veins.

CHAPTER XI.

PLAINS OF IGLO.—MOUNTAIN OF TATRA.—SALT-MINES OF VILLICZKA, &c.

After quitting the comitat of Gomor, my next excursion was to the frontiers of Galicia. Passing through the plains of Iglo, I came to the town of that name, which is but a small place,

* This word is often pronounced and written Topfschau, and hence, it has been derived by many from Topfschaven, to look into a pot. The arms of the town represent the circumstance of a miner looking into a pot. This refers to a tradition, that the original miners having assembled to give a name to the town, agreed to take for it the word that the first miner, coming out of the mines, should utter. One of their comrades soon appearing, drew near the fire, exclaiming, "Er muszle zu seinem topfschauen,—I must look into my pot." Others, however, derive it from the situation of the town, appearing, from the very high mountains that surround it, as lying in the bottom of a pot.

though the principal of the sixteen free towns of Zips, and the centre of the royal administration.

It was about half a day's journey from Iglo to Mount Tatra, which I meant to visit. On the way, I called at Gross Lomnitz, on M. Berzeviczy, for whom I had letters of recommendation; he received me in a manner most agreeable to my feelings, and I had no little satisfaction in his society and conversation. In countries so remote, and generally deemed, though erroneously, only half civilized, in comparison of the rest of Europe, to meet with a man so well informed, scientific, and learned, was a source of high gratification. Before supper we walked to the heights behind the castle, and had a magnificent view of the Tatra. Its most acute cone, known by the name of the Peak of Lomnitz, rises majestically, like a nine-pin, above every object around it, and is about 5700 feet above the plain that lies at its foot. It stands completely isolated, and its flanks are marked by deep ravines, produced, in 1813, by a water spout that fell on the summit, unrooting trees, dragging along enormous portions of rock, and hollowing the soil to a great depth. The mountain of Tatra has been described by geographers, as connected with others that branch into Transylvania, but I had many proofs of the contrary. Though I did not scale the summit, I had opportunities of surveying it on every side.

We set out from Lomnitz with very good horses, proceeding in a straight line for the farm of the same name, and reached it in about two hours. The lower parts of the rocks, as we advanced, were partly cultivated with an indifferent kind of oats, further on were meadow grounds, and at the farm appear juniper and fir trees. Here we breakfasted, and leaving our horses, set out on foot, with attendants that carried provisions for a dinner. M. Fabritzi, the fiscal or steward of M. Berzeviczy, would accompany me in this excursion, and this rendered it doubly agreeable. We entered a valley called White Waters, from the usual colour of its white muddy streams that empty themselves into the White Lake. After two hours march among rocks, we discover the elevated peaks, contiguous to that of Lomnitz, which form the natural limits between Hungary and Galicia. Here are varieties in the vegetation; those declivities of the mountains that are not too steep, exhibited thick forests of different pines, with the *sorbus aucuparia*, and the *vaccinium uliginosum* was in great abundance. Approaching the White Lake, the vegetation grows more scanty; the other species disappear, and we find only the *pinus pumilio*, the spreading branches of which form tufts that are sometimes twenty feet in diameter.

After three or four hours' further march, (for the naturalist cannot always reckon distances rigorously) we came to the Green Lake, (Grüne See) so named, as, from the hills that surround it, green spots are seen here and there on the black surface that covers the rest of its waters. Approaching near, I remarked these spots, as arising in places whence issue the little springs that feed the waters, and where the bottom is a white sand, composed of little portions of mica. This lake is at the northern foot of the Peak of Lomnitz; from this point that acute cimex appears quite as high as from the plain. It exhibits a pyramid rising to a peak, and at length, almost vertically above us. It stands in a spacious basin, surrounded with rocks perpendicularly steep, at the foot of which lie, n heaps, the blocks and fragments that are constantly falling from the heights. We heard several *avalanches*, or downfalls, while we were traversing this part. Very near the Green Lake, at the foot of a rock almost perpendicular, in the shape of a needle, is another lake very deep, but much smaller, called the Black Lake, from its waters reflecting a blackish hue. Snow, I am told, never rests on the summits of Tatra, but it is found in the valleys, where, sheltered from the winds, it does not entirely melt throughout the summer. I should have observed, that the White Lake is so named from the waters that roll from the surrounding mountains, being often impregnated with a white calcareous matter.

We were descending very quietly, without any signs of bad weather, but, in this region, naturalists must, it seems, endure the shock of the elements. M. Wahlenburg complains of it, and prefers the climate of Lapland to that of Hungary. M. Townson was unlucky here, also; and just when I was felicitating myself on my better fortune, a clap of thunder, in the mountain, was harbinger to an assemblage of clouds, and the rain fell in torrents. It did not last above half an hour, and our clothes, though well soaked, had time to get dry, so that we returned safe to Lomnitz. I was inured to these sinister adventures, and concerned to find M. Fabritzi, who had accompanied me from complaisance, not a little incommoded.

There are several mines in the mountainous groupe of, or about, Tatra, and especially mines of copper. There is an auriferous vein, inclosed within quartz, towards the summit of the Krivan, but the mines of Botza are in the greatest repute; these are of argentiferous and auriferous copper, and have been worked a very long time. The surrounding mountains give numerous indications of similar materials.

Parallel to the groupe of Tatra, is another mountainous range, rich also in mines. In the valley of Lipto, which is in

these parts, are the numerous caverns noticed in maps of Hungary, especially that of Demanova, and described by some authors as containing ossified remains of animals. The valley itself, from its magnificent vegetation, has acquired the surname of Hungarian Switzerland. There are, however, other caverns in the comitats of Arva, Thurotz, &c.

Finding, at Lomnitz, that I was but three days' journey from Villiczka, I felt an inclination to visit its famous salt-mines. I made preparations accordingly, taking care to have my collections sent directly forward to Pest. My baggage I had removed to Eperies, and I took with me only what was necessary for my little excursion into Poland. I set out with horses hired at Gross Lomnitz.

The Polish auberges are many degrees inferior to those of Hungary; this I had soon an opportunity of witnessing. Being obliged to stop at Relyo, in a wretched *cabaret* kept by a Jew, for my bed I had nothing but a bottle of straw spread in the middle of what served me for both chamber and kitchen, wherein I had scarcely room to stir, and which, moreover, was very near the stable. My Jew was very apprehensive of defiling the dirty porrengers that served for his own use, and would have conversed with me, seated on a chair, had I been in a humour to listen to him. My supper was an omelette of fried eggs badly cooked. To enhance my misfortunes, several peasants came in at ten at night, to drink potatoe brandy; the place was nauseating with it, and they would have remained till next morning, had I not assumed the character of a great lord, and dislodged them.

When day appeared, I quitted my laire without waiting for breakfast, though it was my custom to take refreshment before setting out. At the town of Altendorf, I had to undergo an examination by the officers of the customs; this, however, was soon dispatched, as I had only brought a shirt with me, but my passports were only for Hungary, as, from information I had received, there would be no difficulty in passing the frontiers. The clerks, however, thought otherwise, alleging that I should have had letters for quitting Hungary, and that, besides, an order of the Hungarian chancelry could not be valid in an Austrian *douane*, as if every Hungarian must repair to Vienna in quest of a passport for Galicia. The director whom I called upon gave an order for instantly signing my passports, but his wretched scribes stood haggling with me, and seeing me take snuff, pretended to confiscate nearly an ounce that I had in my snuff box. I then threw the whole about the place, and as it was fine and dry like all the snuffs

prepared in Hungary, they presently decamped, not caring to come in contact with it.

The whole country of Poland seems very poor; we see nothing but oats and potatoes in cultivation, and an air of wretchedness pervades the peasants. Their clothing consists of a surtout of coarse brown wool, fastened about the body with a leathern girdle; under this few of them wear a shirt; and they have nothing else but linen pantaloons, commonly without stockings or shoes, or in lieu thereof, sandals bound with thongs that pass under the feet. On their heads they wear a round hat, or a woollen bonnet; their hair, filthy and greasy, hangs down behind. The villages contain cabins or hovels of earth or clay, and in the town of Myslinicé, excepting the inn, which is a neat building, and the Town-House, which has nothing in it remarkable, the other dwellings are of a similar description.

After two or three days' travelling, wherein one part of the road lay between two hills very near each other, and on the tops of which we could see the remains of old castles, that defended the passage, and were celebrated in the last wars between Poland and Hungary, I arrived on the heights of Villiczka. Here we survey a vast horizon with not an elevation that deserves the name of a mountain. At a little distance, in the west, the city of Cracow (*Krakau*) appears to great advantage, and even Villiczka exhibited an object on which the eye might repose. Hence, in less than a quarter of an hour, I arrived at the town, the entrance to which is by a kind of suburbs. This part was inhabited by Jews, who, with their large black robes, long beards, and huge hair bonnets, reminded me of Robinson Crusoe in his island. In the town I was shewn to a wretched auberge, the only one in it, where my chamber, perfumed with onions, was a sort of warehouse to the kitchen adjoining; indeed, the passage lay through it. The windows and doors were opened to let in the fresh air, but this had not been done of some years, and they made me a bed as well as they could. About three in the morning I heard the crowing of fowls; I thought, at first, they were under my window, but one of them mounting on the bed, I found there were half a dozen others perched on a pole. As I wished to get rid of them, I had some exercise in driving them out at the window, and this thoroughly awoke me. I was for getting out also, but the doors being secured, I followed the fowls and jumped out of the window.

The little town of Villiczka is situated on the verge of the plains of Poland, and at the northern foot of the mountains that separate it from Hungary. Tradition reports that the mines, which constitute its wealth, were discovered by a shepherd, named Vil-

liczk, and that Queen Cunegonde had them opened about the beginning of the fifteenth century. Its salt mines exceed all others in Europe in their extensive produce, and in the execution of the works and labours. On the day of my arrival I had solicited permission to visit the mines, and the next day the director sent an engineer to accompany me, so that I had an opportunity of examining every thing in detail.

The usual entrance into the mines is by the great well of extraction, as the descent is more speedy than by escaliers, and such precautions are adopted that there is no danger to apprehend. This well or pit is about ten feet in diameter at the mouth, but widens considerably lower down. It is about 200 feet in depth to the first gallery, beyond which we every where descend by superb escaliers. The upper part of the pit is lined with timber, as it passes through a quicksand; the lower parts, which have been cut through the mass of salt, or in the saliferous argile, require no support. The mode of an expeditious descent has nothing frightful in it to a miner; nor am I surprised that all the persons employed would ascend and descend, in a manner instantaneous as it were, rather than traverse four hundred and seventy-six steps by the escalier. In the mines that I had visited heretofore, I descended either upright or seated on the edge of the basket that brings up the minerals, holding the rope in one hand, and a lamp in the other; but, at Villiczka the descent is by a singular process, whereby several, seated in a sort of rope arm-chairs, in divisions, or rows, one above another, are let fall, in a few seconds, in a ythat seems frightful to persons not accustomed to it. Every one here carries a bougie in his hand, so that it appears like a set of chandeliers one above another: the movement is effected by horses.

The saliferous depot of Villiczka has long been the subject of notices published at different times. The stupendous labours in the execution have often excited the enthusiasm of travellers, and have given rise to pompous descriptions, wherein not a little of the marvellous has been mingled. I shall confine myself to a slight sketch of what relates to the works, and what is most remarkable in the mine.

The works at Villiczka are on a grand scale, conducted with perfect regularity, and even with a sort of luxury. Beautiful galleries, large and elevated, form easy communications between all the works of each story; superb escaliers, cut in the saline mass, or constructed of solid timber-work, in the heart of the different excavations, produce a general circulation, and points of junction between the upper surface at the

aperture, and the labours throughout, even where they are the deepest.

Exclusive of these magnificent works, which are essential to the mining, and which contrast, in a striking manner, with mining labours in general, particular decorations have been added on certain points. Here is a spacious hall, agreeably ornamented, in the middle of one of the cavities, produced by the clearing away of the salt; there appears a chapel, with columns, statues, &c. cut in the salt itself; in other parts are terraces on the brink of the excavations, also gates representing the entrance of a strong castle, an obelisk commemorating the visit of the Emperor Francis, all regularly fabricated of rock salt. We find also, in different points, inscriptions noticing the presence of the sovereigns; decorated radeaux, on which they pass over the collections of waters and lakes; consecrated paintings, dedicated, by the veneration of the workmen, to the patrons of the labours. Nor is this all; at every step we find traces of magnificent illuminations which have been made, at different periods, in the heart of these depths. Such are the real facts, which have been embellished by a thousand fictions. Some of these may be quoted here; springs and streams of fresh water, a windmill, houses with several stories, as in a town. It has been further reported, that the workmen, when once entered, never quit the place, but this is only true as applied to the horses. Among other fabulous reveries, children were born here that had never seen the day.

In general, this depot may be considered as an immense mass of argile, called by the workmen, halda, disposed, not in strata, but in vast bodies unusually voluminous, to which, names have been given according to their respective positions, and the degree of purity in the salt. The works are divided into stories; the first, or uppermost, is a coarser sort, called *gransalz*, or green salt. The second story exhibits a purer salt, named spiza, immense quantities of which are exported to foreign countries. The third and last story, named szibik, is lamellated, that is, divided into a number of thin plates.

These different collections of salt, as also the saliferous argile that contains them, are of great solidity. Each of them, when worked, is nearly cleared throughout, and then appear immense excavations, the walls of which are well able to support themselves. In the lower parts, the works are only advanced into such bodies of salt as, by their position with respect to the upper galleries, cannot, by fresh cavities, impair the solidity of the rest. From the solidity of these masses, combined with the facility with which they are penetrated, those beautiful escaliers, with the spacious galleries and architectural decora-

tions, by which this mine is distinguished, have been, with less difficulty, executed.

Several of these cavities contain considerable collections of water, and even large lakes, into which, as they are cleared and emptied, portions of the saliferous argile are thrown. Boats and radeaux are in use on several of them.

The dryness generally remarked in this mine, has not escaped the attention of naturalists, but the same phenomenon occurs in all salt-mines. It often contrasts, in a striking manner, with the excessive humidity that pervades works that pass through earths of another description, previous to arriving at the salt.

Organic remains have been occasionally discovered in this mine. Remnants of cray fish, and the shells called *chamites*, have been found in the heart of the saliferous argile. It is not unusual to meet with ammonites, and other marine shells, even in the salt itself, and in the argile, petrifications, and pit-coal. M. Townson noticed little bivalve shells in the argile that incloses the spiza salt. Some have mentioned elephants' teeth, and the ossifications of quadrupeds, but these have rather been found in the lands, increased by river slime of the adjacent plain, than in the saliferous depot.

It may be further observed, that this mine lies at the foot of a great chain of mountains, consisting of free-stone and argile, that reach to the Buckawine, and the mountains of Marmaros, and that all the depots of salt, and all the salt springs of Galicia and Hungary, are exactly in a similar position.

The greatest depth of the labours in the mine of Villiczka is about 960 feet below the surface. The descent into the mine is about 150 feet below the level of the sea.

As to the organic remains peculiar to these mines, they consist of lignites, or fossile carbonised wood, scattered through the salt, and marine shells inclosed in the saliferous argile. The fossile wood is so abundant in the spiza salt, that it is hardly possible to break off a piece wherein some will not appear. Some have nearly passed into a state of jet by transformation, others are altogether bituminous, and retain their figure. There are very large trunks and fragments, as well as very thin branches of trees. I have been informed that leaves, in the form of cords, have sometimes been found. I observed, in the director's collection, a fruit of a round form, of the size of a nut, in tolerable preservation.

This fossile appeared to be of a ligneous description, something like the shells of nuts; but I could not distinguish to what genus of plants it belonged; it had passed into the bituminous state.

What struck me the most in these bituminous lignites, was the very strong and nauseating smell which they emitted, not a little resembling truffle at the height. This becomes insupportable in a chamber where fresh samples are stored; in the mine it is qualified by circumstances, perhaps by the muriatic acid. Indeed, it is not easy to discern it there; the smell that is perceptible, resembles what we find in places confined and not frequently cleaned.

Another more remarkable singularity is, that this smell is exactly like what some species of the medusa, molluscæ, and marine animals, thrown up by the waves on the shore, exhale. The alcohol, in which these animals are preserved, takes the same smell very strong, especially when the decanters are not well stopped up. This is the more noticeable, as I have never observed any vegetable putrefaction with the like property. One instance may form an exception, certain fossile madrepores of Italy, that have been extracted from depots as modern as those of Villiczka.

The shells are found in the saliferous argile, but never in the salt itself. The largest that I have seen are bivalves, from four to five lines in diameter (a line is the twelfth part of an inch). Such as I collected were, apparently, of the genus *tellines*, but they would not bear handling, dissolving instantly into dust. Besides the bivalves, the argilous mass contained an infinite number of fluted, microscopic univalves, very much resembling those found in immense quantities in the fine sands of our seas, and in certain marine depots that have not been very long discovered, in the environs of Paris.

Though I could find no remains of animals in the pure salt, there appears in the king's private cabinet of mineralogy, at Paris, a very distinct fragment of madrepore, in a portion of salt that looks like the green salt of Villiczka.

The circumstances above noted, of lignites, or bituminous wood, found in large quantities in the mines of Villiczka, with the fluted shells, &c. are the more remarkable, as we know of nothing similar in other saliferous depots.

Here, also, I might observe, that in certain mountains to the north, on the banks of the Vistula, in the middle regions of which are lead mines, are calcareous substances, exactly similar to such as appear in the mountain Lime, as it is called, of Derbyshire. To which may be added, that all the depots of salt, at Villiczka and Bochnia, with all those in Gallicia and the Buckawine, as well as in Hungary, are found uniformly in one position, i. e. at the foot of a chain of mountains. Also, that the saliferous depots of Poland are always on the borders of plains, and only at the height of about 760 feet above the

level of the sea, while in the depots of the Alps, that are, apparently, of more ancient formation, they are found at the height of 4850 feet above the same level.

The salt-mine of Bochnia is not above four leagues from that of Villiczka; it exhibits similar characters, and is probably a continuation of it. The whole substance of the soil, between the two towns, is homogeneous. But at Bochnia we find, about the town, and on the very surface of the soil, an argilous matter that prognosticates the vicinity of the saliferous argile.

In some of the neighbouring forests, which are covered with vast numbers of *sapinettes*, a very elegant species of fir, and here and there with the thayd, I remarked ant-hills of extraordinary magnitude; some were not less than ten feet in diameter at the base, and in height exceeded my stature. They formed hills of small bits of wood, accumulated into a congeries. There were many others smaller, but more considerable than any that we meet with in the woods of France. These forests are extremely solitary and of unknown antiquity.

While in these parts of Poland, I was proceeding one day, on a Sunday, to Altsandec, where all the inhabitants, peasants, were promenading the village in their best apparel. This might be reckoned pretty good, but I never could reconcile myself to that singular mode, though almost universal, of having the shirt hanging down over a blue *culotte*, and adjusted to the waist by a dark-coloured flannel waistcoat.

Approaching the frontiers, I found the roads extremely dangerous, from passing along declivities where are no traces of a visible path, and where carriages frightfully incline to a descent. The inclination sometimes appeared so considerable, that I was eager to take the measure of it, but how was I astonished to find it, where the descent was most rapid, at not more than from twenty to twenty-five degrees. The fact is, that our senses misled us frequently in these approximate computations; however, no carriage could travel here with security, were the friction less considerable. In France, the high roads, where the descent is most rapid, are, by law, restricted to five degrees inclination. Occasionally, roads of this description are met with in Hungary, but mostly in the mountainous parts; where they are descending, the drivers pass without hesitation, though sometimes at the risque of getting stuck fast at the bottom. Indeed, throughout Hungary, the roads are in general execrable. Horses and carriages drive over such points as no one in France would ever think of passing.

Proceeding towards Lublo, to enter again into Hungary, over some hills of moderate height, I found an old castle, (an

occurrence pretty frequent) and soon after, at the bottom of a valley, had to go through the ruins of a village, destroyed by an inundation; to prevent similar accidents, it was rebuilt on the hill. Lublo is a pretty considerable town, and has baths in its neighbourhood, of some repute. Unfortunately, I arrived on the eve of a great market-day, and the inn, and both public and private houses, were full of guests, so that there was no possibility of getting a lodging. No doubt my equipage would appear singular; I was taken for a comedian. The inn-keeper would gladly have entertained me, when I promised him much diversion, but I was obliged to retire and re-pass the river Poprad, in quest of a cabaret, where the peasants were dancing, and they usually continue the sport through the night. I then had the bed removed to the coach-house, where I slept quietly; my domestic lay in the pantry, and my coachman on some straw in the stable.

The little town of Bartfeld, where I arrived next, is tolerably well built; its situation is pleasant, and it would be an agreeable place, were it not encumbered with the ruins of its ramparts, which bear an impression of desolation. It has ranked among the royal free towns since 1376, and has a pretty considerable trade in wines, wool, and corn, forming an entrepot between Hungary and Poland. About half a league north of the town are baths of great celebrity, and deservedly so from the excellent quality of their acidulous waters. They have nothing of that hepatic smell, commonly emitted by similar springs in Hungary, nor of that iron taste which is often disagreeable, though the waters may be very wholesome. They are in a situation extremely picturesque, and are the most esteemed of any in Hungary, being exported to considerable distances, as were formerly the waters of Seltz, till artificial means of producing them were discovered.

On leaving Bartfeld, I descended the valley of Topla, and there my coachman contrived to overset the carriage, in as good a road as any in Hungary. To enhance my misfortune, we plunged into a brook, and my barometer was broke in the fall. All the samples that I had been collecting, since my departure from Kesmark, were immersed in the water, and the sack which contained them rolled also into the stream. I had not paper enough to wrap them in a second time, and, to remedy these disasters, I was under the necessity of repairing to Eperies. But misfortunes seldom come alone, and in crossing certain hills, over roads which I shall call diabolical, the carriage rolled over a second time, and the coachman, who had not learned caution from the first accident, here broke his shoulder bone.

One general remark may be made here, that the salt-springs and saliferous depots are constantly found conterminal with (i. e. more less bordering on) sands, whether of a deep solid mass or otherwise, mixed with argilous couches. This remark will apply to Eastern Galicia and the Buckawine, taking in the depots of Dobroniel, Drohobicz, Lisovice, Delatyn, Kossow, Solka, &c. stretching from NW. to SE. and passing on to Bochnia and Villiczka. A similar remark may be made, as applicable, in some measure, to the numerous iron mines and works at Smolna, Orow, Skole, Myzun, Weldzicz, Rotzniatow, &c. as also in the Buckawine, and on the frontiers of Moldavia, these are found between the couches of argilous sand and the free-stone with calcareous cement. To which may be added, that it is especially in the districts occupied by this free-stone and argile, that all the salt-springs and saliferous depots, at the northern foot of the Carpathians, from Villiczka and Brochnia to Portestye in the Buckawine, are found. And further, these saliferous depots differ materially from those in all other countries, as containing a considerable quantity of organic remains. These may be here recapitulated, as consisting generally of bivalve shells, that appear to belong to the telline genus, of small microscopical, multilocular shells, of the renalite, rotalite, or discorbite genera; and lastly, of lignites, in larger or smaller pieces, wherein are lodged trunks and branches of trees, intermingled with fruits and leaves.

CHAPTER XII.

MOUNTAINS BETWEEN EPERIES AND TOKAI, OPALS, &c.

My arrival at Eperies could not repair my disasters, as I had no tubes for the barometer in the baggage I had forwarded thither, and unluckily, though I ranged about the town, I could not find one *barometmacher* in it. The bad weather, too, prevented my geological perambulations in the mountains; and M. Sennovitz, the only naturalist I wished to see, being absent, I spent my time in promenading the town with my umbrella. Judging of it, under such circumstances, Eperies appeared to me very large, well built, and, what is not common in Hungary, the streets are decently paved, and have rather a neat appearance. The inhabitants may be rated at from 7 to 8000, consisting of Germans, Sclavonians, and Hungarians. The first are by far the most numerous, and the Hungarians are but few

in number. This town was raised to the rank of a royal free town towards the end of the fourteenth century, and it is now the most considerable of any in the comitat. The other free royal towns are Zeben and Bartfeld; the former (Sabino, Sclav.) takes its name from Sabina, sister to king Bela III. Eperies is surrounded with walls that are in pretty good condition, but it was often taken by the Polanders, by Ragotzky, and others, and suffered much in different wars. It is now one of the chief towns of Hungary. Here is a tribunal and a garrison; the trade is pretty considerable, and there are several manufactures. The Lutherans have a college here of some reputation, and they are very numerous. There is one very good inn, but they charged me very high for my entertainment.

The weather clearing up in the afternoon, I walked out of the town towards the hill Calvarienberg, on the sides of which are several little chapels painted white and red, and a church at the top. These different buildings, intermingled with trees, present a varied and magnificent scene.

Among some freestone hills, a little east of the town, are the salt-mines of Savar, that have been worked for several centuries, but were more considerable formerly than at present. The salt-springs issue immediately from the freestone, and are covered here, as in the plains of Poland, by arenaceous or sandy beds, not solid or consistent. It is probable that deeper researches would lead to very considerable depots of salt, as the geological relations are analogous to those of Villiczka and Bochnia.

I returned to Eperies with an intention of proceeding to Kaschau, and having ordered horses at the post-house, I set out in rainy weather. Arriving at Habsany, the first post station, meaning to visit a depot of opals, and somewhat in ill humour with the weather, fortune befriended me. As chance would have it, the office clerk went to consult his master about promising me the horses, but he soon returned with an invitation to enter the chateau; here I found, in lieu of an ordinary post-master, a gentleman of singular affability, M. Edward Bujanovics; he would have me stay dinner to judge of the weather, and promised me the company of the tutor to his children, as far as to Cservenitza. The accident of my barometer was also repaired; he tendered me one constructed on the plan of Reichenbach, that he had purchased at Vienna. I took knowledge of the quantity of mercury that it contained, should an opportunity offer of comparing it with another, the better to ascertain the correctness of my observations.

In my route from Habsany to Cservenitza, I first crossed

the plains of Hernat and Tarza, consisting of depots of alluvion or of cultivated lands. I then passed over some hills also under cultivation, and at length arrived at the opal mines, which are at some distance beyond the village of Cservenitza.

These mines, which constitute the riches and reputation of the country, have been worked for ages; the labours are very considerable. Fichtel reports, from papers in the archives of Kaschau, that in the year 1400, three hundred workmen were employed in the county of Cservenitza, either in the search of opal or in the quicksilver works. It is not very likely that these were in regular employment; they might be peasants of the neighbourhood, who anciently enjoyed the privilege of seeking for opal wherever they could find it. It was only at a more modern period that the labours in quest of this precious stone became individual property. The Austrian government had possession of it for a certain time, and then abandoned it. The Baron de Brudern has lately obtained some right herein, on condition of employing workmen regularly; till then the works had been carried on without any general plan. At the passage where I descended thirty men were at work, at the rate of 40 kreutzer per day, (about 14 Sous of French money.) Two comptrollers were here to superintend the men and conduct the works, also to see that no labours were carried on in the adjacent parts. When at Vienna the Baron de Brudern had promised me a letter, but not having seen him since, I should have had no little trouble in getting permission to visit the works, had I not been accompanied by the governor of the children of M. Bujanovics. The comptrollers, however, conducted me every where with a degree of complaisance, but watching my every movement. My object was to examine the rock, and to ascertain the variety of opal, the most important in respect of science, though of little value in common estimation.

I visited successively the principal mines, commencing with the mountain of Dubnick. Here the opal is found in a rough long conglomerat, in veins more or less extensive, the opaline matter filtrating into fissures which it fills up in whole or in part. The most common sorts are the opaque opal, of a yellowish or reddish white, and the milky opal, more or less pellucid; there is also the *fruar* opal, or opal of fire, in pretty good abundance.

At a little distance is the Pred Branya, south of Dubnick, and near that another mine, at the mountain named Libanka. It is here that the works have been prosecuted with the greatest activity, sometimes in open air, and sometimes by subterranean excavations. I found much to reprehend in the plan and disposition of these labours.

In the above long conglomerats, which are always more or less ferrugineous, are veins of a very fine matter, wherein the oxyde of iron, or rather the hydrate of iron, is very abundant. Sometimes these veins are conjoined with veins of a siliceous opaline matter, and the two substances get mixed. From them results a true opal jasper, more or less ferrugineous, also opals mingled with iron. The finest stones, such as we have in our collections, mostly come from a variety of trachytic conglomerat in this mine, as also the opal prisms. In this part the labours have been most considerable. Some years ago an opal of the finest sort was found, of the size of a small crown piece; it was disposed of, according to report, for 30,000 florins, or about 79,000 francs. In the conglomerat the opal, for use in commerce, is found near the surface, as well as at remote depths.

The environs of Cservernitza are not the only places of these mountains where the opal is found; there are mines, it seems, at Bunita, at Erdoske, and near Sovar, as also towards the south, at Herlany, at Kenieneze, &c. In these points, last mentioned, large quantities of common opal and of opal jasper are excavated, erroneously designated by the name of pechstein. In former times there were also opal mines at Zamuto, which were rather prohibited than abandoned, and at present very fine stones are, occasionally, discovered there. In general, opals are extremely abundant in all this trachytic groupe of hills, and indices of them unexplored I thought I could discern in various points, but none are so beautiful or in such abundance as in the environs of Cservenitza—and what is rather remarkable, a particular character attaches to the conglomerat that contains it.

After this excursion I returned to Habsany, intending to proceed afterwards to Kaschau. M. Bujanovicz had obligingly provided me a lodging in his house, though he was absent from home. The day after my arrival at Kaschau I found myself detained by rainy weather, though I had little occasion to prolong my stay. The Abbé Este, professor of physics in the university, for whom I had letters of recommendation, was going to spend his vacation in little journeys among his friends. I had recommendations to several of them, and the Abbé offering me a seat in his carriage, we so adjusted matters that for fifteen days, consecutive, we were frequently together; the society of this old gentleman being every way agreeable, and his attentions to me unbounded.

Kaschau (Kassa, Hung. Kossiec, Sclav. Cassovia, Lat.) is the principal town of Upper Hungary; it was founded by certain Saxon families that came to settle there in the reign of Geysa II

Here they raised two villages, one of which, the present town, was raised to the rank of a free town, by Bela IV. It was then surrounded with walls, and became one of the strongest places in Hungary. The inhabitants are from 6 to 7000; here is an administrative chamber, as also a garrison and a commandant. The town is pretty well built, and there are several very neat houses, but the way of living is in general simple, and without luxury. In the winter, the neighbouring gentry come to reside in it. To these belong certain great houses that might pass for hotels in Paris. There are several spacious caseans and churches, both catholic and reformed. The principal church, built in the fourteenth century, is a very handsome structure, of an agreeable Gothic architecture; it forms the most prominent object to shew to strangers. The university was founded about the middle of the seventeenth century, by the bishop of Erlau, benedict Kisdy; the reformed have also erected a college. In short, Kaschau is one of the first towns of Hungary, and has every thing to render it agreeable to a stranger; next to Pest, Buda, and Presburg, I would give it the preference for a constant residence.

The hills about the town are mostly covered with vineyards; further on are the mountains of Dargo, all covered with thick forests, consisting entirely of oaks. Pursuing this excursion to reach Talkebanya, I crossed the plains of Ondava, covered with little eminences of a sandy formation, and with few marks of cultivation. Further on, from the summit of some hills above Galzecs, the prospect is most beautiful and extensive, and the weather being favourable I drew a sketch of it; the forepart exhibits a level country under cultivation; the first hills have, here and there, groves or patches of wood, but all the loftier region behind is entirely covered with it.

Telkebanya is a village at the foot of the mountains that formerly had mines of gold of some celebrity. I found an auberge in it, kept by a jew, who provided me with a very neat little chamber, after warranting an assurance that I meant to pay him. After that, I had no reason to complain; I was well entertained at a moderate expense, and the next day he took care that I should not be overcharged by the guides that I was obliged to hire. I must here observe, with regret, that the Jewish publicans, against whom I had entertained prejudices, were in general far more reasonable, in my dealings with them, than others of the catholic faith, who frequently extorted from me in a most unchristianlike manner.

In the evening I had provided a guide to the mines, and next morning early we were on our journey. The country was partly covered with vegetation, and partly under cultiva-

tion. I observed also large quantities of jasper, and pebbles of molar porphyry, more or less siliceous. After three quarters of an hour's walk, we arrived at the mines, where, my visit being short, and the labours having been ill conducted, I could only collect, in general, that the auriferous depot is found in the trachytic mass, or more particularly in rocks that strongly resemble molar porphyry.

There were but three or four men at work, employed occasionally, but from bad management they seemed to be losing their time and labour. I may observe here, that the map which Fichtel gives of this district, and of the whole tract between Eperies and Tokai, is not to be depended upon; I detected a number of false positions. I may further remark, that the opal of this district (Telkebanya) is in nothing more remarkable, than in an exact likeness to that discovered by M. Humboldt, at Zimepan, in Mexico; the geological circumstances are in strict analogy, and the samples from the New World, now at Berlin, could not be distinguished from those at Telkebanya, if the labels attached to them were lost.

Passing through a valley covered with a forest of beech and oak trees, and afterwards over mountains in horrible roads where we were up to the ancles in mud, we arrived at Tolcsva, wet to the skin from a heavy rain, and bespattered with dirt up to our ears. We had, indeed, the look of banditti rather than of persons used to good company. M. de Szirmay, for whom I had letters, was not at home, and the only individual in the house was a girl, to whom my appearance was but an indifferent recommendation. She received me after some hesitation, when I had explained the particulars, conducted me into a chamber and made preparations for supper, which was as necessary as a lodging. Next morning M. de Szirmay arrived, and expressed not a little concern that I had intruded myself, as it were, into his house. M. de S. was only occasionally at Tolcsva, but he made me promise to meet him at Uj Hely, to proceed afterwards to his house near Hommona, at the foot of the mountains of Vihorlet, which I wanted to explore.

The town is pretty considerable, and may contain three or four thousand souls. The Jews are so numerous, that at first they seemed to be the only inhabitants. Out of the town are numerous plantations of vineyards, as also caves hollowed out in the pouncy conglomerat, with stone doors to them; and about a quarter of an hour's walk from the town are extensive quarries of mollions, a coarse rough stone used for ordinary buildings.

I then proceeded across the mountains, which are entirely

covered with trees, mostly oaks, for the town or village of Tallya. I expected to find a road for my carriage, relying on the assurance of my conductor. There is, indeed, a road, but it is never perhaps frequented, unless by wood-cutters, and it was so bad that the horses had to stop every minute to take breath, and we were obliged to lay stones under the wheels. In descending the road proved much better.

I passed the night at Tallya, and set out next morning for the Sator, the most elevated point in this part of the country. From the plateau or little plain, at the summit, there is a very beautiful prospect over a great number of towns and villages, that, from their contiguity and magnitude, evince the fertility of the country. The eye distinctly recognises Tallya, Golop, Manok, Megyozzo, Szanto, Varallya, &c., and a number of others that are partly hid among trees. The remote view is terminated by mountains.

The object of my next journey was Tokaj, or Tokay, a town, the name of which is justly celebrated from the wines which constitute the riches of this part of Hungary. But for this it would not be considerable enough to merit particular attention. The place, however, is rather cheerful and gay than otherwise, and the Theysse which borders it, by facilitating its commercial intercourse, produces a degree of activity among its inhabitants. Some of the houses are well built, and there is a tolerable auberge; the inhabitants also seem comfortable in respect of circumstances. The town is not without some reputation among mineralogists, but it is a borrowed one, for the substances to which the name of Tokay is given, are found at some distance, about other villages and towns that are entitled to notice equally with Tokay.

The wine, known throughout Europe by this name, is not peculiar to the environs of the town, which furnish but a small quantity, and that not of the best quality. The vineyards which produce this wine, extend over large tracts of country, from Szanto to Tokay, on the western declivities of the mountains, and from Tokay to Tolcsva, along a semicircle of hills that pass by Erdo Benye. The vines are also cultivated on the declivities between Tolcsva and Uj Hely, and even on hills more remote. The whole territory at the foot and about the high mountains, bears the name of Hegy Allya, denoting the lower part or flank of a mountainous region; hence the wines of Tokay are sometimes known by the name of Hegy Allya. By mistake, in various French and German works, this last name has been assigned to a little chain of mountains between Tallya and Tokay, but the mountains of Hegy Allya would then signify, literally, mountains at the foot of the mountain.

The culture of the vine is attended to with singular care through all this extent of country. The grounds for plantation, the size of the vine, the requisite labours, the double ploughing or digging of the soil, the shelter for the young plants during the winter—these preparatives are minutely superintended by the real owners, with an ardour like that of an amateur, watching over rare and delicate plants. Of course the vines exhibit an air of symmetry, of neatness and vigour, not usual in ordinary vineyards. The props are upright and well set, the branches tied and bent with judgment, the distances between the vines correctly adjusted, and the paths about them well laid down to afford a prompt access to them. Men are also appointed to guard against damages of any kind, especially towards the end of the season, when the grapes begin to ripen.

The vintage is always very late, generally about the end of October, as they wait till the grape has attained its greatest maturity, and till some parts are half-dried upon the vine. The quality of the wine chiefly depends upon the state of the weather in autumn; the fruit must ripen and grow dry gradually, and the warmth or heat must be in proportion to the coolness and dews of the nights, and the mists that are then frequent. Should one of these circumstances predominate, or premature frosts be sensibly felt, the grape would not arrive at its full maturity, and the fairest promise of a good vintage would be blasted.

Other particular and unusual precautions are also adopted. All the grapes thoroughly dried, are laid apart, as also such as are merely ripe; but in both cases the damaged parts are thrown away, and the sound fruit only is used, which prevents the admission of any improper flavour. Occasionally care is taken to keep separate the different varieties, of which there are four or five, in the plantations of the Hegy Allya.

The grapes that are gathered when merely ripe, are trodden and pressed apart. From these the ordinary sort is produced, which in good years is pretty sweet, very spirituous, and of an agreeable flavour, but this wine is consumed in the country and has no superior reputation. The wines commonly known by the name of Tokay, though in many parts of Europe what are sold for such, are either adulterated or fabricated, are prepared in a peculiar manner. The juice of such grapes as are half dried, is mixed with that of the common grapes in greater or less quantities; from this mixture, which is very luscious, comes a good wine, of which they make two sorts, the Ausbruch and the Maslas, but I could not be present at the vintage and distinguish the precise difference between them.

The half-dried grapes are thrown into a heap, and from

their mutual pressure runs a syrup, very thick, extremely sweet and aromatic, which is collected with great care. The quantity may be augmented a little by pressing the grapes lightly, but so as not to bring away any of the pulpous matter, as that would tinge the taste of the juice. This juice sometimes takes the name of essence, it is mixed, in a certain proportion, with the juice of the common grape as it comes from the hogshead, before the gross matter is submitted to the press. This mixture, after fermentation, produces the real ausbruch, a term which corresponds to what is called in French *mere goutte.* The maslas is made by mixing the residue of the half-dried grapes, after squeezing them harder, to crush the pulp, with the common wine, both that which is obtained from treading and that which comes from the press.

The wines that pass under the name of Tokay are very dissimilar, and very often the resemblance is merely nominal. I have tasted all the different sorts, and among them have found some that may be called very bad. Some are of a straw colour, with a slight greenish tinge; in general I consider these as the best; others are of a brownish yellow, more or less strongly marked. Some are clear, others thick and turbid, but these last are often very excellent; they had, probably, been bottled before the sediment had settled. In fact, the wine, as exported in little barrels, contains a large quantity of mucilaginous matter that settles very slowly, so that when it arrives at its destination some time must elapse before it will be fit to put into bottles. On the *mare* or gross substance of the grapes, it is common to pour a fresh quantity of good wine, which, when well shaken, takes a sweet and very agreeable flavour; to this new mixture they also give the name of maslas.

Wines of the best quality are soon disposed of, with a reserve of some for the domestic consumption of the owners. A very large quantity goes into Poland, and there they are found to be the best, from the custom of keeping them a length of time. The prices vary according to their age; in the district of Tokay Proper, good wines of some years standing are at a ducat (twelve francs) a bottle, but in Poland they are at two, three, or five ducats, as kept longer or shorter.

A notion generally prevails, at least in France, that the real Tokay is only made in places where the imperial family have possessions, and that it is only from their cellars that it can be had in perfection. The Hungarians deny this, and allege that many land owners have vines of the very best quality. They assign the pre-eminence to the environs of Tarezal, and the second rank to the canton of Erdo-Benye, where the exposure to the sun is peculiarly favourable. This distinction I have

derived from other parts of Hungary, as there was no safe relying on the pretensions of the two rival cantons.

The genuine wines of Tokay are supereminently excellent, having a particular flavour which I cannot well define, and not to be found even in such as come nearest to them. But the superiority will not make amends for the price they are at in France, compared with the wines of Frontiniac and Lunel, which very strongly resemble them. I have no doubt but that equal care in the culture, as to the maturity and desiccation, with the precaution of throwing out spoiled grapes, &c. would produce wines in Languedoc that might match with those of Tokay. The wines that are fabricated with grapes dried artificially, are somewhat like the Tokay, and are not seldom sold under that name.

In various other parts of Hungary luscious wines are made according to the methods in use at Tokay. Some are white, others red, but in general they are of an inferior quality. Indeed the wines of Memes, on the frontiers of Transylvania, may enter into rivalship; it is red, sweet, and very spiritous, with the finest and most agreeable flavour imaginable. Several prefer it to the wine of Tokay, and I am one of the number—yet I think it still more unlike Tokay than our best Lunel. But whatever its good qualities may be, its reputation falls far short of what it deserves—the name of Tokay is uppermost in the market.

I shall now resume the course of my mineralogical journeys. In quitting Tokay I returned to Toclsva, to pack up my collections, and send them on to Pest. Then, setting out from Toclsva for a series of mountains that form the frontiers of the Marmoros and the Buckawine, the first part of the road lay in a plain, with nothing particularly observable till I came to the banks of the Bodrog, which are very agreeable, along which we coasted to near Saros Patak, where we turned out of the road to visit a mountain, at some distance, famous for its mill-stone quarries. On our arrival, I observed a striking similitude, in all the varieties and accidents of geological circumstances, between these quarries and those of Konigsberg and Hlinik.

I then returned to Saros Patak, where I had left my carriage, and proceeded in the direction for Uj Heby; on my arrival I found M. de Szirmay waiting for me. I alighted at the house of the comitat, where was an assemblage of persons occasioned by a squabble, like what occurs sometimes on the frontiers of France and Spain. For a long time, the inhabitants of a tract bordering on that of Erdo-Benye, had complained of their neighbours for pasturing their cattle on a mountain which be-

longed to them, as they alleged. For this violation of their rights, one fine day in the year 1818, they proceeded to bring away the whole herd to their own village. Then the inhabitants of Benye, with the judge at their head, came, *vi et armis*, to reclaim possession. A bloody contest ensued, wherein several individuals were killed, and a number of women and children wounded. The people took back their cattle in triumph, but eventually it will prove a serious matter to them and to the judge. Here M. de Szirmay presented me to the baron Malony, who politely invited me to dinner.

CHAPTER XIII.

MOUNTAINS OF VIHERLET.

On quitting Uj Hely I proceeded next for the Udva, near Komona, where M. de Szirmay resided occasionally. At Lazony I stopped a little at the house of M. Paul Szirmay, where the Abbé Este met me by appointment. My reception here was most agreeable, and I took leave with regret, the next day the Abbé Este accompanied me to Udva, and afterwards to Munkacs. On the summit of a mountain we passed by the old castle of Barks, and found the town of Homona, lying in a sort of basin, surrounded with hills of freestone. These connect with the mountains that form the boundaries of Hungary and Galicia. The village of Udva is at a little distance among the hills.

I left Udva early the next morning, on a visit to the mountains of Vihorlet; at Dluha I took up M. Alex. Szirmay, who would accompany me in this excursion. Leaving Dluha we came to a forge, where men were at work on different minerals, the most valuable of which was carbonated iron, from Ostrosznicsa; its colour was a light grey, with a tinge of yellow. Here were also minerals from Varano, much mixed with earth, and in the middle of them concreted parts of hydrated iron. I surveyed the whole establishment, and took notes of the different minerals that were lying in heaps about it.

Our course was then directed for the rock of Szinna, which may be discerned at a very great distance. Our guides insisted that it would require four hours to reach the summit, but being inured to the ascent of mountains I judged otherwise; in fact, we arrived there in a hour and a half. All these mountains are covered with thick forests, through which now and

then we discerned some slight traces of road. The rock of Szinna is an abrupt high and steep precipice, but the ascent is pretty easy from a number of steps, though of an irregular description. The summit is a little plain, pretty level, commanding a view of the whole country. We descended then in quest of a lake at the bottom, on the banks of which, near a wood, our attendants lighted a great fire, prepared provisions, and we encamped for the night. Awaking at intervals, I promenaded the little valley adjacent to the lake. In this solitary scene my sensations were of a truly singular kind. The profound obscurity that pervaded the forests, the expansive sheet of still water, the stars reflecting a twinkling light on its surface, produced a beautiful and affecting scene, gratifying not only to a man of taste, but to a philosopher, and such as no poetical similes could do justice to.

The lake is every where surrounded with mountains of some height, and it receives all their waters. These have a passage through a winding and very narrow valley, with a forge and a flood-gate at the end, to regulate the volume of water. The sides of the mountains are very steep hereabouts, and it proves very fatiguing to scale their summits. They are interrupted by a great number of little valleys, through which it is often difficult to find the road.

After this excursion we returned to Dluha, and thence to Udva. Next day we set out (the Abbé Este was with me) for another excursion on the mountains of Vihorlet. We had intended dining at Vinna, but entering the chateau of Ormezo, we were so importuned to stop, that we could not resist the invitation. Here we found a numerous company, several being of the most considerable families in Hungary, and I had the pleasure of being introduced to their acquaintance. The society was excellent, and the dinner party very lively and gay; we took leave, however, proceeding for Nagy Mihaly. The maps which I had of this part of Hungary presented a number of hills, but our road lay wholly over a plain.

At Nagy Mihaly, we alighted at the chateau of Count Albert Staray, the exterior of which is in the modern style, with every regard to convenience and symmetry. The architect has skilfully availed himself of two ancient towers that had a gloomy appearance, and uniting them by a portico, with a terrace over it, every semblance of antique fortification has disappeared. The interior is also decorated with a display of taste and elegance that forms a striking contrast to the simplicity that reigns, in general, throughout the dwellings in Hungary.

From Nagy Mihaly I made an excursion to Vinna, where I had the honour of visiting the Countess Wallenstein. The

village lies at the foot of a mountain, and her old castle is situated on an isolated point adjacent. It is the fate of travellers, and especially of the naturalist, to break off an acquaintance abruptly, which it would be his highest pleasure to cultivate. Setting out early from Vinna, it was evening before we reached the residence of Count Barkoczi, at Palocz. The country was level, but a marsh intercepted our direct route, and we had frequently to wind about it. Next morning we set out early for Unghvar, but rainy weather coming on, the rest of my journey became toilsome. Several excursions that I had projected I was obliged to abandon, and to content myself with such information as I could collect from different quarters. In some of the mountains, in the parts adjacent, consisting of trachytic conglomerats, are found the minerals of iron, or rather, of silico-ferrugineous matter, in use at Domonya, and partly to aid the fusion of other minerals.

At Munkacs, we alighted at the house of M. Dercseny, distinguished by his various scientific researches, and more especially by his discovery, in Hungary, of aluniferous or alum rocks, exactly resembling those of Tolfa, in the Roman states. These, which are in the comitat of Beregh, furnish a new and very important branch of industry to the district.

The country of Munkacs was the cradle of the Magyars, where they settled towards the end of the ninth century, under their chief, Alom. It is one of the finest and richest countries of the kingdom. The town of Munkacs has a melancholy aspect; it was formerly surrounded with walls. The fortress, which has been notified in history by the wars of Tekely and Ragolski, was built in 1360, by Theodore Keriatovics, duke of Munkacs, and enlarged afterwards at different times, by the princes of Transylvania, in whose possession it long remained. It stands on the summit of an isolated butt, in the middle of the plain, and is in very good preservation. For some time it has served as a place of custody for state prisoners, but had none at the time of my visit. In the interior, every thing was extremely neat, but the different partitions intended for the prisoners, were such as to excite horror. The windows are so contrived as to intercept every view of the country; the walls are remarkably thick, and pierced obliquely, so that the day-light can only enter from above. The aperture, however, is large enough, thoroughly to lighten a little chamber, so that the prisoner may have the benefit of reading, or of employing himself in some labour. In one of the apartments of the castle, we find portraits of the Ragolski family. I know not how far they exhibit a resemblance, but they have an ill-looking aspect, and the last chief of the insur-

gents, with somewhat of a military air, appears also ungracious and forbidding, so that I felt no inclination to regret his memory. The mantle of this last is preserved in the church among the sacerdotal ornaments.

The aluniferous rocks that formed a principal object of my visit to this part of Hungary, are not at Munkacs, but in the country of Bereghz Sasz, where they are found in abundance. There is only one quarry of alum works at Munkacs, where M. Dercseny has introduced the process in use at Tolfa. The minerals are so intermingled, that an average product is obtained in the rate of about twelve for a hundred. They first go through an operation by fire, and then are removed to a sort of threshing floor, where they are constantly watered to reduce them to a paste, and after another operation by hot water, and evaporation, they are deposited in tubs to let the alum crystallise.

The weather continued unfavourable, but I was under the necessity of quitting Munkacs. The Abbé Este then returned to Unghvar, and I took the direction for Bereghzasz. In the afternoon I reached Bereghzasz, and presented my letters to the baron Pereny. Among the adjacent hills I observed a great number of vineyards that produced a pretty good wine, the exposure or situation being favourable.

The baron Pereny had sent for the director of the alum works at Deda, to accompany me to Musaj, and we set out next morning. At the village we found some alum works, and M. Wobry, the director, ordered a young man to attend me in my visit. Quarries of mill stones were formerly worked here, and are still occasionally, though considered as inferior to those of Saros Patak, and Hlinik, but the aluniferous rocks, discovered by M. Dercseny, have greatly enhanced the importance of this whole tract.

Petrified wood is found here, in the midst of the aluniferous rock. Fragments are found partly in a siliceous state, and partly in the state of compact alunite. M. Dercseny shewed me some beautiful specimens, and presented me with some, the characters of which are strongly marked.

A question here arises, whether the facts observed at Mujac are analogous, in their circumstances, to those at aluniferous depots in other parts of the globe? Probabilities may be founded on the apparent identity of the products, and we may adopt one general remark, that when there is an exact conformity between rocks, in a pretty considerable number of their samples, it is rare that the same does not exist also in the geological relations. But if we compare the products of the mountains of Musaj, with those collected at Tolfa, at

Piombino, in the islands of the Archipelago, as Milo, Nipoligo, &c., the resemblance would be so perfect, even in minute particulars, that if the samples of the different collections were confounded, it would be impossible to point out their local origin.

As to the alunite, or the substance that, from its intermixture, furnishes alum by calcination, the samples that I collected at Musaj make it appear that it is a very distinct species, to be determined by its chymical and crystallographical characters.

CHAPTER XIV.

BRIEF NOTICES RELATIVE TO TRANSYLVANIA AND THE BANAT.

Towards the central part of the principality, in a westerly direction, on the groupe of mountains that rise above Carlsburg, are a number of mines of salt, and of salt springs. In several places the labours are very considerable, the works being conducted in large galleries. Such are those of Thorda, of Dées, Kollos, and Szek, also of Viz Akna to the south, in the vicinity of Hermanstadt.

Near to Sibo, on the banks of the Szamos, gypsum is found in large quantities, either white or more or less coloured; ornamental articles, of various kinds, are made of it.

In one part of Transylvania, the country of Kapnik, the mountains in the north, are pronounced, by Fichtel, to be volcanic formations; but this opinion is inadmissible. The rocks which he calls Lavas, are, in reality, porphyric grunsteins. I had positive proofs of this, in the collections of M. Schuster, at Pest. Near to Fekeleto are mining works, from which are produced the red mottled calcairs, known by the name of marble of Grosswardein. There are also variously coloured marble mines about Belenyes and Vasko, and at Funacza is a cavern of considerable magnitude, wherein the ossified remains of quadrupeds have been found. In general, the mines that form the riches of Transylvania are found in the porphyric grunstein. The mines, in that part called the Banat, are uncommonly rich, and particularly in copper, with an intermixture at times with silver and gold. The superb specimens of blue carbonated copper, of Moldava, Orairecza, Dognazka, &c., are well known, and are only inferior to those discovered of late years, at St. Bel, near Lyons. In these mines also are found those beautiful green granets, of which some mineralogists are for forming a particular species.

Such are the general facts that I could collect respecting Transylvania; it is, however, a country abounding in objects interesting for a naturalist to visit.

CHAPTER XV.

DEBRETZIN, NATRON LAKES, &C.—THE AUTHOR'S RETURN TO VIENNA.

The continuance of rainy weather for eight days together, and the very bad roads, rendered my future progress discouraging. My papers had been frequently wetted, and I was unable to preserve what I was collecting, or to make regular connected observations. I had intended to cross the mountains of the Marmaros, but then I should have been under the necessity of sleeping in the open air, which then was impracticable. I determined for Debretzin, and quitting Ardo, began to cross the plains of Szaboes. I had been told of the difficulties of travelling through districts overspread with marshes, but could have formed no idea of the horses being up to the belly in mud, and the carriage in danger of sticking fast in it, and even of being overturned. To aggravate my misfortunes, I could only procure oxen to the first station, and to reach the second; besides oxen, I was obliged to have two Wallachians for my guides. This was the first and only time I had to complain of the Hungarian peasants; these were ill-looking figures, whose dress and appearance prejudiced me against them from first setting out. From a negligence which disgusted me, they proceeded to ill-humour, and at length grew insolent. I was seriously exasperated, frequently threatening them with my cane, and with the bastinado on reaching the next station. My cool and determined air had its effect, and though we were at night-fall in the midst of the marshes, we arrived safe at Nagy Kallo. Here the fellows asked my pardon, dreading lest I should put my threat in execution.

At this place I was in danger of starving, as all the provisions in the auberge had been consumed, and I had to content myself with a small loaf and a glass of bad wine. Nagy Kallo was marked on my map as a post establishment, but for six years no demand had been made on the post-master, and I was obliged to have recourse to the worspan or judge. I had to wait some time, as he could only find oxen, and would hardly propose my taking horses extraordinary, that is, paying the double station. Assuring him that I would readily do this,

and treat him besides with wine, my generosity was not thrown away, for, instead of oxen and Wallachians, I had four good horses and a well-behaved guide, with whom I advanced rapidly to Teglas.

At Teglas I had a letter for M. De Bek, who happened to be absent. I was kindly entertained, however, by madame de Bec, with whom I found two French, or rather Belgian young ladies, her relations, that agreeably brought my own country to recollection. Before dinner I promenaded the gardens, and had only one fault to find, their being in a plain perfectly level.

Previous to my entering Debretzin, the aspect appeared barren and cheerless, and at the return of day, my judgment of it was still more unfavourable, as most of the houses have but one story, and if two or three, here and there have two stories, the buildings, in forming a comparative estimate, would be little valued in any other scene. The streets are not paved, and already, though the season was not far advanced, and the rains had only lasted a few days, it was hardly possible to pass from the middle of the street to the houses without considerable deviations, to find some fragments of a causeway.

Natron is found in abundance in the environs of Debretzin, in a state of solution, among the marshes and lakes that spread on all sides of the plain. It is found, more or less, from the plains of Szathmar, to those in the comitats of Bacs and Pest, also in those of Stuhlweissenburg and Œdenburg, but more particularly between Debretzin and Nagy Varad, where it has been obtained a long time, from several lakes that get dry in summer, the salt then appears on the ground. This saline efflorescence, in the middle of summer, looking like heaps of snow, has procured them the name of white lakes in Hungary. The salt, when taken away, is reproduced every three or four hours, and this lasts through the fine season. Magazines are formed of it at Debretzin, both for exportation, and the manufacture of soap. The annual produce is more than 10,000 quintals, and there is no doubt of its being made much more considerable, were attention paid to some very rich lakes that are at a greater distance.

The existence of nitron in the middle of plains, in the waters of the lakes and marshes that cover them, is one of the most interesting facts in geology, but the least known. It is a phenomenon not exhibited only in Hungary; it occurs in the immense deserts that overspread different parts of our globe. From what we know of this mineral production, as discovered in Egypt, in Arabia, Persia, the Indies, Thibet, China, Siberia,

the plains about the Caspian and Black Seas, in Asia Minor and Mexico, it is found every where in analogous relations and circumstances. Such are sands mixed with marle and argile; it is accompanied with several other salts, whereof the common sort is the most plentiful. There was a succession of rainy weather which prevented my researches into other particulars, though my curiosity had been ardently excited.

I spent one entire day in peregrinating the borders of these lakes, but the earth was every where a flat surface, and there was no ravine, to explore its composition in detail. Thoroughly to investigate the phenomenon, it would be requisite to make excavations, and examine such as have been made occasionally in certain pits or wells. Ruckert, who for a long time was employed in extracting the natron, and had leisure to explore the soil, states that the sands are not more than four or five feet in thickness, and that they rest on a layer of blue argile, and sometimes contain particles of iron in grain. He observed waters always lodging in the deeper parts, and therein is contained a great quantity of carbonate of soda, from 50 to 60 for the hundred, and which crystallises in the cold nights of autumn.

Not being able to remark on the saline efflorescence of the soil or surface, where every thing was in a state of re-dissolution, I examined the natron that had been previously collected. It was mixed with a pretty large quantity of grey argilous matter, and contained much muriate of soda, with a certain quantity of sulphate. I had afterwards an opportunity of seeing some among the peasants in Great Cumania, collected in the marshes that border the Theysse, and I noticed the same salts, though in a less quantity. The same observation occurred in the natron gathered in the plains about the lake of Nieusiedel. I conclude that the carbonate of soda is never pure, but that in Hungary, as elsewhere, wherever found, it is ever mixed with muriate of soda, more or less.

As to the origin of the natron, we have not data in a sufficient number to pronounce on it with certainty. We are reduced to speculations which, as being founded on facts, independent of any hypothesis, merit a degree of attention. With respect to sub-carbonate of soda, to which Ruckert attributes it, by a certain process of nature, this opinion rests on no positive observations, as no excavations have been made, purposely, for the sake of such. Nor is it in analogy with the depots of rock-salt, ancient or modern, and the waters of our seas, which deposit salt on the shores, contain no trace of it. In this last case, there does appear, however, to be a formation of natron, but in very small quantities, which effloresce

on the surface of the soil, and must be attributed to the decomposition of muriate of soda. This takes place in different ways, varying only in the promptitude with which the operation is performed. Advantage has been taken of it, for the fabrication of the sub-carbonate of artificial soda, and applicable successively, to a number of processes, more or less profitable.

So also it is, in the decomposition of muriate of soda, that we are to look for the origin of natron. M. Berthollet accounts for the daily formation of this salt, in the valley of natron lakes in Egypt, in a probable manner. He imputes it to the reciprocal action of muriate of soda, and carbonate of calx, aided by the efflorescence, which determines the successive separation of the carbonate of soda, and thus allows a continual and indefinite decomposition to take place. Ocular inspection will show that the lakes contain a great quantity of muriate of soda, lodged in a calcareous soil, the rock of which pierces here and there the sands which cover it. We meet, likewise, with strata of gypsum, which probably accompany the depots of rock-salt, which the waters perforate before they enter the lakes. This explication very well agrees with the natron lakes of Hungary, for the richest are found in the eastern part of the great plain, at a little distance from the calcareous mountains that form the advanced posts of the high mountains of Transylvania. In the middle of those, or behind them, are considerable masses of salt; more to the west the plain is filled with rough calcareous depots, like those in the environs of Paris. The carbonate of calx seems very abundant through the whole plain, and forms daily deposits of strata, more or less dense, at the bottom of the marshes.

Every thing indicates that there is much muriate of soda in all the plains of Hungary. Most of the saliferous argiles, that I have had occasion to observe, as well as the argilous masses on the borders of the natron lakes, contain a quantity of carbonate of calx, and all are, more or less, sandy. These mixtures naturally prepare the decomposition of muriate of soda; one, by directly furnishing the substance that is to produce it, and the other, by rendering the mass more porous, and thereby facilitating the efflorescence of the natron. If the decomposition does not operate in the mines, it is from a scantier supply of heat and of moisture, and especially of fresh air. It is evident, that in tracing the course of these plains, where muriate of soda is constantly found in the waters, they lead, in an unvarying continuation, to the masses of salt that form the object of considerable mineral works.

Another salt is also found in the plains of Hungary, more difficult still, perhaps, to explain, salt-petre, which is found in very large quantities in the plains of Hungary. It effloresces, also,

on the surface of the earth, in the comitats of Szalhmar, Bihar, and others. The labours for collecting it are pretty considerable, sufficient to answer the demands of Hungary and Austria. Near 7000 quintals were taken on the account of Government in 1802, but the produce might have been much augmented.

My next route was from Debretzin to Pest, a journey of four days, across the great plain, which constitutes in some measure, the centre of the whole country. The superficial extent, from the Danube to the mountainous parts, is not less than 40,000 square leagues. In all this range, the traveller, especially in the latter part of the season, might fancy himself in the heart of a desert, with no apparent road, and whatever dwellings might be traced, would lie scattered, in various directions in the chief towns, at vast distances one from another. And what are a great number of these habitations? wretched hovels, built of earth and straw, or a sort of rough bricks dried in the sun. Not a tree, not a hill, for the eye to repose upon; and the flat surface, from the effect of refraction, seems every where to rise and fall in gentle slopes. At the extremity of the visual horizon one might, in some measure, take the height of the stars, as at the horizon of the sea. Sensibility seems to recoil at the idea of such an immense expanse, bounds to which the eye in vain looks for. A profound silence reigning throughout the day, it is not without satisfaction, therefore, that the traveller, fatigued with so monotonous a *tableau*, hails the approach of night, that will relieve the stretch of vision and fancy, by fixing it within the range of his narrower optical sphere. The silence is then interrupted by the cries of water-fowl, and soon the numerous fires, kindled by the herdsmen, the peasants, and by the drivers of carriages, &c. that lodge in the plain, afford an aspect more gay and cheerful. Then, indeed, the traveller does not appear alone, in a desert. But the fires are often, in reality, at very great distances, though to an observer, little used to survey objects over so vast and level a superficies, they may seem very near. It has been my lot, more than once, to spend two hours in a voiture with four horses, to reach one of those fires, that I had thought of coming at in ten minutes. This made me speculate on the angular distances of the fires, which seemed disposed in circles about me, and so near to each other, that the parties might easily form an intercourse. Those distances were not less than two or three leagues.

This plain becomes the receptacle of all the waters of the east and north; in general it is extremely humid, and as it every where keeps its level, the rivers that traverse it, not being confined within their banks, render the lands miry, or form impracticable marshes. The eastern part especially, that is to say, all the plain to the left of the Theysse, exhibits a sort of extensive

marsh, from a number of little streams descending from the mountains of Transylvania, that serpentine, in a thousand directions, and leave stagnant waters on their banks. In this part, however, the lands that are under cultivation have been successively gained from the marshes; and the soil, consisting partly of vegetable and animal remains, is remarkably fertile, so as to become, in some measure, a granary for the rest of the country. The land is black, and very dense; and the cereal plants, (grain generally,) yield 20 and 30 for 1. This is not the case to the right of the Theysse; in the part of the plain between that river and the Danube, most of the lands that are not inundated, produce only heath and brambles, and have an aspect of extreme aridity. The plains of Kekskemet are covered with white and moveable sands, which the winds raise and transport like clouds, to great distances. It is certain, however, that a vast extent of meadow and arable land, by draining the marshes, on a soil filled with fine mud and organic remains, might be reclaimed with infinite advantage.

Besides the arable lands, which produce in excessive abundance corn, maize, millet, &c.; besides the marshy lands in use for the culture of rice; there are vast pastures in these plains, comprehending about 90,000 French acres, where numberless herds of horned cattle and horses are fed. Winter and summer they remain in the plains, abandoned as it were to chance, but entrusted to the care of a few herdsmen, each of whom may have from 12 to 1500 under his care. In summer the cattle are exposed to the violent heats that dry up all the plain, and when the winter approaches, they have no shelter against rain, cold, and tempests; hence, from accidental circumstances, a great number of them sometimes perish. Sad examples are quoted, wherein the loss has amounted to 50, 60, and 80,000 head of cattle in a single night.

The herdsman, assimilated to the animals that he superintends, is in a very little better situation. With no other shelter than his bunda, or mantle of sheep-skin, he must also, night and day, summer and winter, brave all weathers, not having the resource of the mountain shepherds, of digging holes in the sides of the hills for shelter, in a rainy season. But these guardians, as rude and savage as the animals among which they dwell, seem to make little account of circumstances that would be intolerable to others. Their tanned complexion, mustachios, ill-combed beard, hair hanging down, and rustic accoutrements, with a hatchet constantly in their hands, altogether form figures not very agreeable to the eye, and hardly to be surveyed without apprehension. A frightful air of filth must be taken into the account, and often a nauseating smell of fat, from a custom they have of greasing their bodies, and plastering their shirts with grease, to keep them, they

say, from vermin, which would otherwise breed, as they sometimes do not change their linen till it falls into rags.

It is, no doubt, owing to the extreme humidity of many parts in the plains of Hungary, that the inhabitants rear such a number of buffaloes; we meet with them, sometimes, in considerable herds. This animal seems intended for marshy tracts, and proves of great use to the peasants, in labours that require draught. Two buffaloes will draw a heavy load better than four stout horses, and they are easily kept and fed on very indifferent provender. Thus, they thrive wonderfully in moist places, where the ox and horse could not long be preserved in safety. The buffalo is smaller than the ox, and much lower, his hair is of an uncommonly black colour. His horns, striated transversely, curved in a semicircle, and flattened, are thrown behind, so that the animal has little use of them, either for attack or defence. There is something hard, rough, and coarse, in his aspect and manner; no care is taken to keep him clean, as the creature takes a pleasure in miry and marshy waters. He is easily tamed, and does not appear of a mischievous character, but is soon irritated, and throws himself from one side to the other, if in harness, or escapes into the marshes, if at liberty. The milk of the female is full of cream, much better tasted than cow's milk, but is yielded in less abundance. The butter is very good and white, but like grease, and not pleasant to the eye. It is usual, in many places, at milking, to keep the young buffalo before the mother; but I have often seen them stand very quiet, without such precaution, and believe they might be trained to it, like cows. It is curious to mark them, when again entering the farms and places where they have been used to eating and drinking, every movement indicates an extravagance of joy, which they express, also, by a low grunting, not unlike that of hogs. The buffalo is useful for labour, but his flesh is not well tasted, unless very young, and then there is something disagreeable. The skin is valuable for different uses, and particularly in the works for extracting salt, throughout Hungary and Transylvania. The horns are massive, and in great request for many purposes, having the preference to those of oxen, for durability and beauty.

In passing over these plains, the eye of the geological traveller is wearied with the barren and uninteresting prospect. In a space of 100 leagues, he has not seen a pebble larger than a pea, and the soil, a perfect level, shews him nothing but siliceous sands, more or less micaceous, mixed with argilous and vegetable matter. Nor can he have recourse to a ravine, to explore the nature and succession of those modern alluvions which have equalized the soil, as all the rivers have very low banks, and are almost every where surrounded with impracticable marshes.

Having had occasion to mention the notary, I should observe that the word is not to be taken in the sense we use it in France. In the Hungarian villages, they are a sort of mayors, employed to execute orders transmitted by the lords, or directly, by the comitat; all ought to know Latin, which is the language of office and business throughout Hungary. Their appointment is by the lord to whom the village belongs, but the inhabitants of the place may depose him and demand another, if his conduct should not give satisfaction. Every village has also its judge, but he is subordinate to the notary, and, in a variety of cases, must act by and with his advice and consent.

The marshy plains of Hungary, in a zoological point of view, must be highly interesting. The number of aquatic and river birds is immense, among which there exists species it would be difficult to find in the plains of Europe, and especially in France. Such, for instance, are the Glareola Austriaca, or ordinary Sea Partridge, the Charadrius Asiaticus, or Solitary Plover, found on the banks of the salt lakes in Southern Tartary, the Tringa Gregaria, or Social Lapwing, in the plains of the Volga, and a multitude of other species well deserving of attention, mingled with other birds more common. Birds of prey, of every kind, are here in immense numbers, some of them weighing from twenty to twenty-five pounds. Mammiferous animals, of diminutive size, which often occasion much damage, are numerous in the plains, and would be interesting as objects of study. And, lastly, in these vast marshes I have found testaceous aquatic molluscæ of every species, genus, and particular variety; to the study of which I could have devoted myself with pleasure had time permitted. I had collected several varieties that were afterwards lost, and can only recommend the assemblage to the notice of future travellers.

Pest and Buda may be said to form but one city, the two parts of which are separated by the Danube. Pest is on the left side of the river, at the end of the Great Plain, and Buda, on the right, at the summit and on the point of some hills of no great height. A bridge of boats maintains a free communication between the two towns, during a great part of the year; but the rapidity of the river, from heavy floods at times, interrupts the intercourse. Old Buda, which forms a particular precinct, is not properly separated from New Buda, and one might pass from one to the other without perceiving a difference, were it not for a sort of barrier such as we meet with between a town and its suburbs. The result of this union is a very long street along the Danube, between it and the hills that border it; it requires an hour and a half for a pedestrian to proceed from one extremity to the other.

The present importance of these towns is such that they may well be considered as the capital of Hungary. Their height above the sea, (according to the mean level of ten years' observa-

tions, barometrical) at the observatory of Buda, is about 330 feet, the barometer being about 250 feet above the river. The population of these towns, including old Buda, may amount to 50 or 55,000, nearly two-thirds of which are at Pest. It has augmented considerably during the last fifty years, and every thing announces a much greater increase.

The town of Pest, therefore, is now the most considerable and handsomest of Hungary; being pretty near the centre of the kingdom, and from its position on the Danube, it has an easy communication with Austria and Turkey, and becomes a principal entrepôt of commerce. This has attracted a number of Germans, from all the different states, and every day new sources of industry are arising that will ere long rank Pest with the greatest towns in Europe. New buildings, new works of every description, appear in all directions, and the improvements are planned on a symmetrical scale. A commission of embellishment has been established, which obliges the proprietors to build in a manner more agreeable to the eye; the results produced excite the fairest hopes as to the future, and the town already exhibits a great number of elegant and beautiful houses. Their construction is simple but in a good taste, and they run in a right line. The entrance to the town, on the banks of the Danube, has an imposing effect. As to grand structures there are but few; the only one that can be called magnificent is the hospital for invalids, built by Charles VI. and which now serves for a casern. The churches are very ancient and have a poor appearance, recalling the bad taste of the times. There is one hotel for the exhibition of spectacles, very large and handsome; another is building to form an national theatre, for Hungarian pieces only, but the subscribers are very scanty, as there are but few Hungarians in the town. Doubts are entertained whether it will ever be finished. There are no public promenades in Pest that can properly be called such. Some trees, indeed, have been planted along the Danube, and on one of the avenues to the town; this last will probably become a sort of *Boulevard*, but considerable improvements will be requisite to form it into an agreeable retreat. We must go half a league out of town ere we arrive at any shade, in a sort of promenade, called the Stadwald; but it is of little notoriety, either for extent or respectability.

In quitting Pest for Buda, we have, on the bridge, a view of scenery altogether of the finest order. Water constitutes one of its principal features; the majestic Danube is seen to full advantage, and the eye enjoys the replication of its course to a considerable extent. In this part the river is nearly four times the breadth of the Seine, at the Garden of Plants in Paris. Its islands are covered with verdure, and the mountains in the back-

ground, with their craggy precipices and retired glens, shaded, at intervals, by stately foliage, produce an effect truly picturesque. To complete the attractions of the spot, Buda presents an amphitheatre of houses that contrast with the rusticity of the other scenery, and the palace of the Viceroy, on the summit of the hill, fills up a space of ground, insulated from the other buildings.

In Pest we have the bustle and activity of a commercial town; compared with it Budha has a sequestered character, and with some might appear to superabound with solitude. It has no other trade than what its daily consumption requires, and throughout the fine season the noblesse retire to their estates, when their absence leaves a chasm which the other enjoyments of life seem unable to supply. In winter the scene changes, cheerfulness and vivacity return; it becomes the festive season of the year, and families repair in whole groupes to Buda, where the townsmen may welcome them as an annual boon. We then no longer view the place through a gloomy medium; we enjoy the first society, and from the diffusion of that wealth which the opulent possess, others are enabled to support more comfortable establishments. The town is not so extensive as Pest; its situation on a hill proves an insurmountable obstacle to this. It is pretty much in the same situation it was in fifty years ago, but as it was long the residence of the kings, and is now of the viceroy or palatine, it becomes of course the rendezvous of a part of the noblesse. Indeed, the town is very well built, and in a manner far superior to Pest. There are many superb hotels, or mansions, that have an air of grandeur more easy to conceive than to express, and not be found in a mere trading town. Their interior also is very nobly fitted up. The palace of the Viceroy, in some measure rebuilt by Maria Theresa, is of an immense extent, and being very agreeably situated, it is but justice to say that it forms a splendid, and even princely residence.

In Hungary, horses are not harnessed in pairs, but one to draw behind another. Three horses will answer the purpose best, so that one may be less fatigued than the others. It would even be advisable to have one horse running loose along side, each to have this indulgence in rotation.

My first object, after leaving Buda, was to visit certain hills on the road to Marton Vasar, which, from their collections of calcareous shell-work, more strikingly resemble the quarries about Paris, than even those at Pest. The cellars and caves in and about the villages, and at Promontorium, have been worked in these depôts.

Among other depôts of shells, I visited one on the sides of a height, between Biske and Ober Galla, where the quantity is immense. They consist of various genera, but it was not possible

to characterise them distinctly, as the portions of test which remained, had passed into the state of spathic calcaire. I remarked, in general, however, that these organic remains had no sort of analogy to what I may style the Parisian Calcaires of Pest, Promontorium, &c., and that they much more resemble the calcareous formations of the Jura.

Throughout this part of the journey, I saw only little low hills, though, on the maps, were marked mountains of considerable elevation. These hills appeared to me to consist entirely of free-stone with lignites; they were covered with forests of oaks, which yielded sustenance to thousands of half-wild hogs, from their produce of mast. These animals, throughout Hungary, are very small; they have much more vivacity than those that are brought up tame in France, and have even something ferocious in their manner. Their hair is black, most commonly frizzled on the body, and bristled about the sides. It is not very safe being among them with dogs, for when they discover one, they assemble to a peculiar grunt, and pursue him with the keenest antipathy; if he cannot escape, they will tear him in pieces.

I next took the road for Veszprim, calling up the people of the auberge early, according to my custom, and leaving Palota, which lies in a plain, I passed by some mountains which I was not looking for, my map having marked the spot with marshy plains. The town of Veszprim, which my map places in a plain, stands on a calcareous plateau of some height, though a number of houses, which form a sort of suburbs, stretch along the edge of a valley. The descent is considerable, along very bad streets, wretchedly paved, and I had no small trouble to advance with my carriage, it being market-day, and the whole town thronged with people, carts, cattle, &c. But this crowd gave me an opportunity of marking the varieties of Hungarians, Croats, Slowacks, &c. diverting to one of my taste, and presenting, in a lively contrast, various new objects to engage my ideas in contemplation. The dress of the women threw around them an air of singularity in a mixture of genuine rusticity, and studied embellishments, that seemed to bear the semblance of a romantic wildness. Red stockings and yellow shoes, petticoats of strong blue cloth, red corsets without sleeves, or with sleeves of varying colours, a number of ribands, also, of different colours, with a very clumsy head-dress—these, in correspondence, displayed a scene of oddities truly imposing, and such as could not fail to interest and amuse. The head-dress appeared to me to consist of two neck-handkerchiefs, more or less fine, but sometimes coarse enough, one of which, folded like a napkin lengthways, rests on the fore-part of the head, one end falling on the nose, the other, loose and unfolded, is put behind, and covers the

shoulders. The former is then tucked up and thrown behind, or otherwise wrapped about the head, as we wrap a napkin about eggs. The men have mostly round hats, or else, feltcoifs or caps; many had ill-looking hoods of coarse white cloth, and large linen pantaloons; some, rather more elegant, had a *culotte* of strong blue cloth, over which the shirt hung down, with a cloth waistcoat of a bluish grey colour. All these accoutrements met me in every direction, and my promenade was frequently winding into new paths, to enjoy the variegated prospects before me—the whole, however, accompanied with horrible *tintamarre*.

I arrived at Keszthely, at night-fall, and repairing immediately to the chateau of Count Festetits, was received with all that benevolent philanthropy and tender respect, which form admirable traits in the character of an Hungarian gentleman. The count sent for the whole of my baggage, which he would not suffer to remain at the inn.

In lieu of making mineralogical excursions about Keszthely, I intended visiting the different establishments of rural economy which count Festetits had created on his estate. These required a particular attention both from the manner in which they are conducted, and from their being an inlet for the introduction of agriculture into Hungary. This was the first object I was eager to explore next morning, and the count and his son accompanied me, to detail the particulars. Among these, I was most struck with the Georgicon, or school of agriculture, designed to qualify young persons for the superintendance and management of estates. In Hungary such are called officers of economy. It is intended, also, to provide the peasants with such instruction as may make them expert in gardening and farming. This establishment is maintained entirely by the count, who has endowed it, for the purpose, with a considerable farm; there being different professors for different courses of study. These, for such as are to become officers of economy, include what is necessary in geometry, mechanics, the art of drawing, and, more especially, architecture, with the designing and construction of plans, &c. In the latter part of their time the pupils are practically employed in various concerns about the establishment, as keeping accounts, and, alternately, through a round of other duties. Some part of their time is devoted to botany, and to the acquiring of some knowledge in physics and chemistry. On finishing their studies, the young persons either return home with certificates of their proficiency, good behaviour, &c. or are disposed of by the count, on his own domains, or transferred to other lords that may stand in need of their services.

The young peasants intended for gardening and farming, are taught reading, writing, and accounts; nor is instruction in reli-

gious duties neglected. They attend to all such improvements in cultivation, generally, as may be suggested in the modes of rearing cattle, in models of the different implements for plowing, of which there is a complete assortment on the establishment. Every department of the school appeared to be well adapted and conducted; what is essential to be known is taught, and nothing further. In the gardens are collections of various kinds of kitchen vegetables, cereal plants, fruit and timber trees; utility being the object to which every thing is directed. There is also a small botanical garden.

The lake Balaton (Platten Sec. Germ.) is the largest in Hungary. Its greatest length, from S.W. to N.E., is about 16 leagues; its greatest breadth, which is at its eastern extremity, is about three leagues. It grows wider and narrower at various points successively, and, at the point of Tihany, is not above half a league in breadth. In many parts it is bordered with very extensive marshes: the total surface, including the latter, is estimated at 66 square leagues. The lake is fed by a number of small streams, that descend from the mountains, and especially by the river Szala, which rises in the most western part of Hungary. The quantity of water supplied by the streams is but small, compared with the surface of the lake, and there does not appear to be an outlet, unless the little river of Sio be such, which we find in the middle of the southern bank. The lake abounds in fishes; the most remarkable, or that which is most in request, is the Fogacs, a kind of perch, the best eating fresh-water fish that I ever tasted. It is highly valued in Hungary and Germany, and occasionally exported to considerable distances; according to report, it is found only in the lake of Balaton. On the banks which I traversed, I observed swans, ducks, drakes, and molluscæ, such as we have in our ponds. The adjacent marshes swarm with water-fowl. The bottom of these marshes is commonly covered with turf, of which use would doubtless be made, were wood less common. It is in use, however, in several places, and especially for various manufactures. It appears that iron, mixed with slime, is often found in the marshes. In the country of Balaton, generally, there is an ample field for researches to the naturalist, it being a most interesting part of Hungary.

I made but two mineralogical excursions from Œdenburg, but I could not refrain from taking a survey of the famous chateau of Eszterhazi, which had been much spoken of, as a princely and magnificent structure, and which has cost immense sums. It is, doubtless, the grandest and most spacious in Hungary; it stands about four leagues east of Œdenburg, on the borders of the lake Neusiedel, but the locality, in a flat and marshy tract, is not well chosen. The palace itself may be

held up as displaying much stateliness; I have seen few to exceed it. It is exceedingly well built; the architecture is noble, and the various offices are of an elegant and embellished description. In these respects it far surpasses the actual residence of the prince at Eisentadt. It is also more extensive, containing 200 chambers completely fitted up; I counted 148 window-casements in the principal front, and 200 in the garden front, without including a number of pavilions on the ground floor.

We enter the court-yard through an ornamented iron gate, not unhandsome, but too small, in comparison with the rest of the building. The court yard forms an ellipsis, in one of the foci of which, we find a basin of no great magnitude. The anterior part is occupied by low buildings, with only a ground floor, and which serve for offices and apartments to the steward, housekeeper, &c. At the lower end is the chateau or mansion; the middle part forms an elevated structure, with a terrace on the top and on the two sides, buildings like wings, two stories high, arranged in portions of a circle. An exterior escalier, of a congruous and interesting appearance, leads to the first story of the middle building. Here is the great saloon for receiving company; though in an antique taste, it is scarcely to be equalled for the ideas of magnificence and beauty which it affords. The ceiling is as high as the building itself; the paintings are but indifferent; the flooring is of inlaid work, in white and brown colours. We find some very superb chandeliers, and over the mantel-piece a time-keeper, small and but ill suited to its costly accompaniments; I observed others also in the corners of the casements, of a similar description. The bed-chambers and smaller apartments on the right and left of this vast mansion, contain nothing extraordinary, and from the contrast, sink in importance and respectability. On the ground floor are shewn the minor apartments of the prince; the most remarkable is a little saloon, the wainscoting of which is a varnish of gilt china, which must have cost immense sums, as every piece must have been ordered for the purpose; but the features which characterise it altogether, are far from proving gratifying to the eye. The interior of the chateau, speaking generally, by no means corresponds with the exterior, though the grand saloon may form an exception. It is deserted by the family, which may account for its being stripped of its best furniture, and for the wainscotings and parquets (floorings) going to decay. A quantity of other china is also shewn to strangers, and I saw a number of large dishes, plates, vases, &c., but inferior to the porcelain of Sevres. There are some dishes, shut up in coffers, that appear-

ed to be of European manufacture, but the drawings on them, except two little designs of a field of battle, were not comparable to those fabricated at Sevres, Berlin, and Vienna. The same magazine contained also a large quantity of grotesque china ware, in glaphic talc.

The gardens and woods behind the chateau have nothing very agreeable, as the soil is not well adapted for vegetation. The plantations have not been judiciously planned ; they are modelled on the antique French taste, but the proportions are ill observed, and we have, on the whole, a very ordinary garden, crossed by straight alleys. The statues, that formerly were its ornament, have been removed to Eisenstadt.

The chateau of this last is a square building, on which the eye reposes with an exhilarating effect, though it does not exhibit that richness of grandeur which Eszterhazi possesses. It was built, in 1683, but fitted up, with a number of additional embellishments, especially on the side of the garden, by the present prince. The front towards the villas, is ornamented with busts of all the ancient kings of Hungary. I noticed these with a passing glimpse, but there was nothing in them to draw my particular attention. The entrance is through a gate that seems too small for the building; then, passing through a vestibule that has nothing remarkable, we arrive at a square court, surrounded with buildings of some height. The effect of these is rather sombrous ; at the opposite extremity we find a little low archedway, which leads to the garden. There the prince has erected, in front of the building, a very beautiful perystile, with a gentle semicircular descent on each side, for the convenience of carriages arriving at the first story. This is an elegant structure, but not in accordance with the rest of the chateau. The gardens are in the English style, and there being sheets of water interspersed, and the ground undulated, I felt the glow of satisfaction at the artificial creation, and must acknowledge the sublime effect which the scenery produced on my mind. Opposite the castle, they were building a kisque, which was to be called the Temple of Night; it is raised over a piece of water, encircled with artificial rocks, cut with too much uniformity, and ill suited to the taste of a geologian, accustomed to expend time in exploring the vast recesses of primitive nature.

In one part of the garden, on the slope of a hill, are the plantations which the prince has constructed, in imitation of those of Schronbrunn; they contain an immense collection of plants of all countries. I was most struck with the beautiful series imported from New Holland. The collections from China are not less remarkable ; and, altogether, the botanical establish

ment may rival that of Schonbrunn, and appears to me to be o. the first consideration.

As to the interior of the chateau, the apartments that I saw were very small, dark, and ill fitted up with decorations. In general, though it is doubtless a noble structure, in a situation very agreeable, with gardens like a paradise, it does not rank so high, in the character of a splendid and august edifice, as that of Eszterhazi. The principal defect of the latter, is its disadvantageous situation. The chateau of Eisenstadt, from the embellishments introduced, reminded me of the English country-houses, where the manner of building and living was, at once, convenient and comfortable, but not well befitting the character of magnificent. Many chateaux that I have seen in Germany and France, are not so handsome or elegant as this; which, however, is an object by no means so well calculated to fill the eye with its grandeur, or to inspire emotions of admiration.

I entered Vienna again about the middle of November, exceedingly fatigued with my excursions, after leaving Kesztely, and standing greatly in need of repose. After spending a few days at Vienna, I prepared for my departure, but winter had already set in, and though it was fair weather, the thermometer was ten degrees below zero.

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Northumberland Street, Strand.